

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 996 309

Injection pump
Pump designation : PES6P130A72ORS8521
EP type number : 0 412 936 200

Governor
Governor design. : RE30
Governor no. : 0 421 890 032

Cust. part No. : 309 4436

Customer-spec. information
Customer : CDC
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

AD1

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 10.00
Tolerance mm : ± 1.50
Difference °CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25

Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 425.5
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 434.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Speed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

| | | |
|-------------------------------|---|---------|
| Rated speed rpm | : | 400 |
| Uact V | : | 1.280 |
| Tolerance Volt | : | + 0.060 |
| Check tolerance | | |
| Volt | : | + 0.070 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 49.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Speed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 14.0 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| Uact V | : | 4.700 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 260.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 19.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 22.0 |
| Speed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 40.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 50.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : 9 400 030 730

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100AOC844R
Governor no. : 9 420 034 710

Cust. part No. : 3928599

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 102.5 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| <hr/> | |
| Spread | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.0 |
| <hr/> | |

| | |
|--|----------|
| Rated speed rpm | : 500 |
| Rack travel in mm | : 5.35 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 22.0 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 4.5 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring pre-tension click setting x | : 2.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1100 |
|-----------------|--------|

| | |
|--|---------|
| Aneroid pressure hPa | : 1200 |
| Del. quantity cm ³ /1000 strokes | : 102.5 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 3.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 104.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 11.00 |
| Rated speed rpm | : 1165 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 6.00 |
| Rated speed rpm | : 1225 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|--------|
| rack travel mm | : 6.00 |
| Rated speed rpm | : 1225 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 83.0 |
| tolerance degree | : ± 4.0 |

| | |
|--------------------------|---------|
| Control lever difference | |
| Grad | : 21.0 |
| tolerance degree | : ± 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 4.85 |
| Tolerance mm | : ± 0.10 |

Testing:

Rated speed rpm : 500
rack travel mm : 5.35
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.35
Tolerance mm : \pm 0.20

Rated speed rpm : 1000
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Rated speed rpm : 900
rack travel mm : 13.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.20
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 865
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.96
Test oil : ISO 4113

Combination No. : O 402 046 874

Injection pump
Pump designation : PES6P120A720RS3360
EP type number : O 412 026 785

Governor
Governor design. : RQV300...1100PA1254K
Governor no. : O 421 815 485

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8360.46.4107
Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 175
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 14.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1156
guide sleeve
travel mm : 9.00
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 2.68
Tolerance mm : + 0.20

Rated speed rpm : 380
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.25

Rated speed rpm : 1450
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1325

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1145
Tolerance 1/min : + 5

Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : + 15

Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.60
Tolerance mm : \pm 0.10

Rated speed rpm : 225

CRT mm min. : $>$ 8.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.60
Tolerance mm : \pm 0.15

Rated speed rpm : 850
rack travel mm : 14.25
Tolerance mm : \pm 0.15

Rated speed rpm : 500
rack travel mm : 13.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 850
Pressure hPa : 1200
rack travel mm : 14.20
Tolerance mm : \pm 0.15

Pressure hPa : -
Rated speed rpm : 850
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 850
Pressure hPa : 640
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Pressure hPa : 380
rack travel mm : 11.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 190
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 170
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.50
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.12.96
Test oil : ISO 4113

Combination No. : 0 402 066 708

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...1150P2A619
Governor no. : 0 421 833 522

Cust. part No. : 3283019

Customer-spec. information
Customer : CDC
Motor : 6BTA-590 ELITE
Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 6.75
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.90
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 179.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 7.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 179.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.90

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1330

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1345

LOW IDLE

control lever
position degree : 90.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 6.70

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 7.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 675
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 9.60
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information
Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 147.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 189.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.5

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1420

Del. quantity
cm³/1000 strokes : 189.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1040
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1095

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.70
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 490
 Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 13.00
 Tolerance mm : \pm 0.05

Rated speed rpm : 500
 rack travel mm : 13.00
 Tolerance mm : \pm 0.10

Rated speed rpm : 700
 rack travel mm : 13.00
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
 Pressure hPa : 1420
 rack travel mm : 13.00
 Tolerance mm : \pm 0.10

Pressure hPa : -
 Rated speed rpm : 550
 rack travel mm : 11.20
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 910
 rack travel mm : 12.70
 Tolerance mm : \pm 0.05

Pressure hPa : 780
 rack travel mm : 11.60
 Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1420
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 214.0

Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0

Aneroid pressure
 hPa : 1420
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 205.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 550
 Del. quantity
 cm³/1000 strokes : 177.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 150.0
 Tolerance
 cm³/1000 strokes : \pm 15.0
 Check tolerance
 cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.5
 Speed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 074 700A

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information
Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 890

Rack travel in mm : 13.85
Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 203.0 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | ± 3.5 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 7.5 |
| <hr/> | | |

| | | |
|--|---|--------|
| Rated speed rpm | : | 500 |
| Rack travel in mm | : | 4.20 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 24.0 |
| Tolerance cm ³ /1000 strokes | : | ± 3.0 |
| Check tolerance cm ³ /1000S. | : | ± 5.5 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 4.5 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|------|
| control lever position degree | : | - 3 |
| governor spring pre-tension | | |
| click setting x | : | 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|--|---|-------|
| Rated speed rpm | : | 890 |
| Aneroid pressure hPa | : | 1410 |
| Del. quantity cm ³ /1000 strokes | : | 203.0 |

| | | |
|--|---|-------|
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| Check tolerance cm ³ /1000S. | : | ± 3.5 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 100.0 |
| tolerance degree | : | ± 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | 12.85 |
| Rated speed rpm | : | 910 |
| Tolerance 1/min | : | ± 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 990 |
| Tolerance 1/min | : | ± 15 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1200 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 995 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 80.0 |
| tolerance degree | : | ± 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 500 |
| rack travel mm | : | 2.40 |
| Tolerance mm | : | ± 0.10 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 500 |
| rack travel mm | : | 4.20 |
| Tolerance mm | : | ± 0.10 |

TORQUE CONTROL

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 890 |
|-----------------|---|-----|

rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.85
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1410
rack travel mm : 13.85
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 870
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Pressure hPa : 775
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1410
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1410
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 216.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113
Combination No. : 0 402 076 748A
Injection pump
Pump designation : PES6P110A72ORS3305
EP type number : 0 412 016 742
Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 165.0

| | |
|-------------------------------|----------|
| Tolerance | |
| cm ³ /1000 strokes | : + 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 3.5 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |
| Rated speed rpm | : 400 |
| Rack travel in mm | : 4.40 |
| Tolerance mm | : + 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 36.0 |
| Tolerance | |
| cm ³ /1000 strokes | : + 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 5.5 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.5 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1000 |
| Aneroid pressure | |
| hPa | : 1100 |
| Del. quantity | |
| cm ³ /1000 strokes | : 165.0 |
| Tolerance | |
| cm ³ /1000 strokes | : + 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 3.5 |

| | |
|-------------------------------|-------|
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 108.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 10.25 |
| Rated speed rpm | : 1025 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1260 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1100 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 78.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 3.90 |
| Tolerance mm | : + 0.10 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.40 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|--------|
| rack travel mm | : 2.00 |
| Rated speed rpm | : 450 |
| Tolerance 1/min | : + 30 |

TORQUE CONTROL

| | |
|-----------------|--------|
| Rated speed rpm | : 1000 |
|-----------------|--------|

| | | |
|-----------------|---|--------|
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.05 |
| Rated speed rpm | : | 600 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 500 |
| rack travel mm | : | 11.30 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 450 |
| rack travel mm | : | 12.20 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 12.20 |
| Tolerance mm | : | + 0.15 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 550 |
| Pressure hPa | : | 1100 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.05 |

| | | |
|-----------------|---|--------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 9.75 |
| Tolerance mm | : | + 0.10 |

MEASUREMENT

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 550 |
| Pressure hPa | : | 650 |
| rack travel mm | : | 11.00 |
| Tolerance mm | : | + 0.05 |

| | | |
|----------------|---|--------|
| Pressure hPa | : | 550 |
| rack travel mm | : | 10.25 |
| Tolerance mm | : | + 0.10 |

Start interlock

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | 1100 |
| Rated speed rpm | : | 600 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 186.0 |

| | | |
|-------------------------------|---|-------|
| Tolerance | | |
| cm ³ /1000 strokes | : | + 2.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 5.0 |

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 550 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 152.5 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 3.5 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| rack travel mm | : | 20.50 |
| Tolerance mm | : | + 0.50 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 145.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 10.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 14.0 |

LOW IDLE

| | | |
|-------------------------------|---|-------|
| Rated speed rpm | : | 400 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 36.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 5.5 |
| Speed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 4.5 |
| Check tolerance | | |
| cm ³ /1000S. | : | 7.5 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 7486

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 181.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.5

Speed

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure

hPa : 1150

Del. quantity
cm³/1000 strokes : 181.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85
Rated speed rpm : 925

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 980

Tolerance 1/min : ± 15

rack travel mm : 4.00
Rated speed rpm : 995

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 3.90
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 4.40
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.30
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 12.30
Tolerance mm : ± 0.10

Rated speed rpm : 700
rack travel mm : 12.30

Tolerance mm : \pm 0.10
Rated speed rpm : 450
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1150
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.45
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 10.35
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1150
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 203.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1150
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 076 748H

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A2
Power KW : 172.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 161.0 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : + 3.5 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 7.5 |
| <hr/> | |

| | |
|--|----------|
| Rated speed rpm | : 400 |
| Rack travel in mm | : 4.90 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 36.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 5.5 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 4.5 |
| Check tolerance cm ³ /1000S. | : 7.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|----------------------------------|-------|
| control lever position degree | : - 3 |
|----------------------------------|-------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 900 |
| Aneroid pressure hPa | : 1050 |
| Del. quantity cm ³ /1000 strokes | : 161.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.5 |
| Speed | |

| | |
|--|-------|
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 7.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 98.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 9.95 |
| Rated speed rpm | : 935 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 975 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 985 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 74.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.40 |
| Tolerance mm | : + 0.10 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.90 |
| Tolerance mm | : + 0.10 |

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 900 |
| rack travel mm | : 10.95 |
| Tolerance mm | : + 0.05 |

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 10.95 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|---------|
| Rated speed rpm | : 700 |
| rack travel mm | : 10.95 |

Tolerance mm : \pm 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1050
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 640
rack travel mm : 10.70
Tolerance mm : \pm 0.05

Pressure hPa : 590
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1080
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 181.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1080
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 076 748I

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A2
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.90

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.5

Speed

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1080

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1030

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1100

Tolerance 1/min : ± 15

rack travel mm : 4.00

Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 79.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 4.40

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.90

Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.00

Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 13.00

Tolerance mm : ± 0.10

Rated speed rpm : 700

rack travel mm : 13.00

Tolerance mm : \pm 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1080
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 11.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 775
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Pressure hPa : 705
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1080
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 203.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1080
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 076 748K

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271056

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A2
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
Tolerance mm : ± 0.10

k travel in mm : 10.50
Tolerance mm : ± 1.50

Filling order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.00
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 163.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 36.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 5.5

Speed

Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1080

Del. quantity
cm3/1000 strokes : 163.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Speed

Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : \pm 15

rack travel mm : 4.00
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 11.00

Tolerance mm : \pm 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1080
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 630
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Pressure hPa : 590
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1080
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 188.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1080
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113
Combination No. : 0 402 646 665
Injection pump
Pump designation : PE6P130A720RS7354
EP type number : 0 412 636 835
Governor
Governor design. : RGV30G...950PA1002
: K
Governor no. : 0 421 815 491
Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8210.42K.3000

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 11.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 242.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1025
guide sleeve
travel mm : 9.00
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.64
Tolerance mm : + 0.20

Rated speed rpm : 764
guide sleeve
travel mm : 6.22
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.78
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1190

Rack travel in mm : 11.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1030
Del. quantity
cm³/1000 strokes : 242.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.90
Rated speed rpm : 1010
Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1110
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 6.20

Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.75
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 11.30
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 10.80
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 1000
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 950
rack travel mm : 8.40
Tolerance mm : \pm 0.40

MEASUREMENT

Rated speed rpm : 950

Pressure hPa : 290
rack travel mm : 9.35

Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 130
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 160
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 262.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275

Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.97
Test oil : ISO 4113

Combination No. : 0 402 646 742

Injection pump
Pump designation : PE6P120A320LS7837-2
EP type number : 0 412 626 943

Governor
Governor design. : RQ300/1100PA1272
Governor no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146
guide sleeve
travel mm : 6.54
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 2.24

Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 429
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 1150
 Tolerance 1/min : + 5
 Check
 speed 1/min : + 13

rack travel mm : 4.00
 Rated speed rpm : 1260
 Tolerance 1/min : + 15
 Check
 speed 1/min : + 20

rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.60
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 400
 Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
 rack travel mm : 12.60
 Tolerance mm : + 0.05

Rated speed rpm : 1100
 rack travel mm : 13.70
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 13.70
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 400
 Pressure hPa : 600

MEASUREMENT

Pressure hPa : 350
 rack travel mm : -0.80
 Tolerance mm : + 0.15

Pressure hPa : 200
 rack travel mm : -2.00
 Tolerance mm : + 0.20

Pressure hPa : 975
 rack travel mm : 0.50
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 220

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 214.0
 Tolerance
 cm³/1000 strokes : + 1.5
 Check tolerance
 cm³/1000S. : + 4.5

Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 216.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : 350

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 158.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.97
Test oil : ISO 4113

Combination No. : 0 402 646 742T3

Injection pump
Pump designation : PE6P120A320LS7837-2
EP type number : 0 412 626 943

Governor
Governor design. : RQ300/1100PA1272
Governor no. : 0 421 801 804

Cust. part No. : 0270743002

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 193.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146
guide sleeve
travel mm : 6.54
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 2.24

Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 429
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 193.5
Tolerance

cm³/1000 strokes : \pm 1.0
Check tolerance

cm³/1000S. : \pm 4.0
Speed

Tolerance
cm³/1000 strokes : 6.0
Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 1150
 Tolerance 1/min : + 5
 Check
 speed 1/min : + 13

rack travel mm : 4.00
 Rated speed rpm : 1240
 Tolerance 1/min : + 15
 Check
 speed 1/min : + 20

rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.60
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 419
 Tolerance 1/min : + 20

Rated speed rpm : 220
 CRT mm min. : > 8.27

TORQUE CONTROL

Rated speed rpm : 600
 rack travel mm : 12.60
 Tolerance mm : + 0.05

Rated speed rpm : 1100
 rack travel mm : 13.70
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 13.70
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 400
 Pressure hPa : 600

MEASUREMENT

Pressure hPa : 350
 rack travel mm : -0.80
 Tolerance mm : + 0.15

Pressure hPa : 200
 rack travel mm : -2.00
 Tolerance mm : + 0.20

Pressure hPa : 975
 rack travel mm : 0.50
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 220

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 219.0
 Tolerance
 cm³/1000 strokes : + 1.5
 Check tolerance
 cm³/1000S. : + 4.5
 Spread

Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 214.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : 350

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.97

Test oil : ISO 4113

Combination No. : 0 402 646 743

Injection pump

Pump designation : PE6P120A320LS7837-2

EP type number : 0 412 626 943

Governor

Governor design. : RQ300/1100PA1271

Governor no. : 0 421 801 803

Cust. part No. : 0270743102

Customer spec. information

Customer : MB-NFZ

Motor : OM441 LA

Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

CRT ZERO POSITION

Rack travel in mm : 14.50

Tolerance mm : ± 0.10

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 233.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 2.13

B21

Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 425
guide sleeve
travel mm : 4.89
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 850

Del. quantity
cm³/1000 strokes : 233.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 14.60
Rated speed rpm : 1150
Tolerance 1/min : + 5
Check
speed 1/min : + 13

rack travel mm : 4.00
Rated speed rpm : 1265
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.60
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.50
Tolerance mm : + 0.05

Rated speed rpm : 1100
rack travel mm : 15.60
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 15.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 400
Pressure hPa : 850

MEASUREMENT

Pressure hPa : 500
rack travel mm : -1.60
Tolerance mm : + 0.15

Pressure hPa : 200
rack travel mm : -4.00
Tolerance mm : + 0.20

Pressure hPa : 1240
rack travel mm : 0.45
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 258.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 500

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 780

Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: 2K
Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 230
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 295.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.27
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.11
Tolerance mm : + 0.20

Rated speed rpm : 755
guide sleeve
travel mm : 6.17
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.50
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.65
Rated speed rpm : 1120
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 300

CRT mm min. : $>$ 5.50

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Pressure hPa : 700
rack travel mm : 9.50
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 276.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.20
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RQV350...1050PA1318
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

Customer spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 130
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 4- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30
Tolerance mm : ± 0.05

| | |
|-------------------------------|---------|
| Del. quantity | |
| cm ³ /1000 strokes | : 272.0 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

| | |
|-------------------------------|----------|
| Rated speed rpm | : 350 |
| Rack travel in mm | : 5.00 |
| Tolerance mm | : ± 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 19.0 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 6.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 6.0 |
| Check tolerance | |
| cm ³ /1000S. | : 10.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-----------------|----------|
| Rated speed rpm | : 1106 |
| guide sleeve | |
| travel mm | : 8.02 |
| Tolerance mm | : ± 0.15 |
| Rated speed rpm | : 350 |
| guide sleeve | |
| travel mm | : 1.48 |
| Tolerance mm | : ± 0.20 |
| Rated speed rpm | : 900 |
| guide sleeve | |
| travel mm | : 5.69 |
| Tolerance mm | : ± 0.25 |
| Rated speed rpm | : 580 |

| | |
|--------------|----------|
| guide sleeve | |
| travel mm | : 3.62 |
| Tolerance mm | : ± 0.25 |

| | |
|-----------------|----------|
| Rated speed rpm | : 1204 |
| guide sleeve | |
| travel mm | : 10.00 |
| Tolerance mm | : ± 0.25 |

| | |
|-----------------|----------|
| Rated speed rpm | : 1300 |
| guide sleeve | |
| travel mm | : 11.50 |
| Tolerance mm | : ± 0.50 |

GUIDE SLEEVE POSITION

| | |
|-----------------|--------|
| control lever | |
| position degree | : - 1 |
| Rated speed rpm | : 1174 |

| | |
|-------------------|----------|
| Rack travel in mm | : 11.00 |
| Tolerance mm | : ± 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1050 |
| Aneroid pressure | |
| hPa | : 1300 |
| Del. quantity | |
| cm ³ /1000 strokes | : 272.0 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 120.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 14.30 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1190 |
| Tolerance 1/min | : ± 15 |

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Pressure hPa : 700
rack travel mm : 4.60
Tolerance mm : \pm 0.20

Pressure hPa : 180
rack travel mm : 0.20
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100

CO2

Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 823

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000F1A589
Governor no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information

Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 4.90
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 23.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 263.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

C05

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50
Rated speed rpm : 935
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1005
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1015

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 515
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.50
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1020
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Pressure hPa : 935
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 267.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 276.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 243.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 823A

Injection pump
Pump designation : PE6P120A32OLS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power kW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

C07

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.90
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 400

Rack travel in mm : 4.70

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000s. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

C08

CONTROL LEVER

control lever

position degree : 104.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 14.90

Rated speed rpm : 980

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1080

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1090

LOW IDLE

control lever

position degree : 78.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 3.40

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.70

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 460

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 950

rack travel mm : 15.90

Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 15.90

Tolerance mm : \pm 0.10
Rated speed rpm : 700
rack travel mm : 15.90
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 15.90
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 12.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 1050
rack travel mm : 15.20
Tolerance mm : \pm 0.05

Pressure hPa : 850
rack travel mm : 13.60
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 281.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 227.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 823B

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : 0 412 626 948

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI-E A3
Power kW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000s. : 9.0

Rated speed rpm : 400

Rack travel in mm : 4.70

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 25.0

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance

cm³/1000s. : ± 6.0

Speed

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1500

Del. quantity

cm³/1000 strokes : 263.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000s. : 9.0

CONTROL LEVER

control lever

position degree : 99.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 14.50

Rated speed rpm : 935

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1005

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1010

LOW IDLE

control lever

position degree : 76.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 3.40

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.70

Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 15.50

Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 15.50

Tolerance mm : ± 0.10

Rated speed rpm : 700

rack travel mm : 15.50

Tolerance mm : ± 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 15.50
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 13.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 950
rack travel mm : 14.90
Tolerance mm : \pm 0.05

Pressure hPa : 840
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 243.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 823C

Injection pump
Pump designation : PE6P120A320LS7885-1
EP type number : C 412 626 943

Governor
Governor design. : RSV400...1000P1A589
Governor no. : 0 421 833 449

Cust. part No. : 9277732

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI-E
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 4.70

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 23.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

cm3/1000S. : + 6.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500

Aneroid pressure

hPa : 1500

Del. quantity

cm3/1000 strokes : 263.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000S. : + 4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 99.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.50

Rated speed rpm : 935

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1005

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1010

LOW IDLE

control lever

position degree : 76.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 3.40

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.70

Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 15.50

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 15.50

Tolerance mm : + 0.10

Rated speed rpm : 700

rack travel mm : 15.50

Tolerance mm : + 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 15.50
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 13.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 950
rack travel mm : 14.90
Tolerance mm : \pm 0.05

Pressure hPa : 840
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 243.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 676 836

Injection pump
Pump designation : PE6P120A320LS7898
EP type number : 0 412 626 957

Governor
Governor design. : RSV350...1050P0A668
Governor no. : 0 421 833 587

Cust. part No. : 0280740302

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 A euromot
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 206.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|--|----------|
| Rated speed rpm | : 350 |
| Rack travel in mm | : 5.40 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 19.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 6.0 |
| Check tolerance cm ³ /1000S. | : 10.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|--------|
| Rated speed rpm | : 1030 |
|-----------------|--------|

| | |
|--|---------|
| Aneroid pressure hPa | : 1000 |
| Del. quantity cm ³ /1000 strokes | : 206.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|----------------------------------|--------|
| control lever position degree | : 93.0 |
|----------------------------------|--------|

ASSEMBLY GOVERNOR SETTING

| | |
|-----------------|----------|
| Rated speed rpm | : 1070 |
| rack travel mm | : 12.30 |
| Rated speed rpm | : 1152 |
| Tolerance 1/min | : + 4 |
| rack travel mm | : 4.00 |
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|---------|
| Rated speed rpm | : 1071 |
| rack travel mm | : 12.30 |

| | |
|-----------------|--------|
| Rated speed rpm | : 1153 |
| Tolerance 1/min | : + 4 |
| rack travel mm | : 4.00 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|---------|
| Rated speed rpm | : 1072 |
| rack travel mm | : 12.30 |

| | |
|-----------------|--------|
| Rated speed rpm | : 1154 |
| Tolerance 1/min | : + 4 |
| rack travel mm | : 4.00 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1300 |

Rated speed rpm : 1073
 rack travel mm : 12.30

Rated speed rpm : 1155
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1074
 rack travel mm : 12.30

Rated speed rpm : 1156
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1075
 rack travel mm : 12.30

Rated speed rpm : 1157
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 71.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.40
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 415

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
 rack travel mm : 13.30

Tolerance mm : \pm 0.05

Rated speed rpm : 800
 rack travel mm : 13.30
 Tolerance mm : \pm 0.10

Rated speed rpm : 400
 rack travel mm : 12.05
 Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
 Pressure hPa : 1000
 rack travel mm : 13.30
 Tolerance mm : \pm 0.05

Pressure hPa : -
 Rated speed rpm : 400
 rack travel mm : 10.40
 Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 500
 rack travel mm : 12.05
 Tolerance mm : \pm 0.15

Pressure hPa : 350
 rack travel mm : 10.80
 Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 207.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
hPa : 500
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113
Combination No. : 0 402 698 033F1
Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :
Governor
Governor design. : RE36 (FD 57102 - FD 57108)
Governor no. :

Cust. part No. : 0250745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 032

Inlet press. bar : 3.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8-7-2-6-3
: -4-1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm3/1000 strokes : 347.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 3.00
Del. quantity
cm3/1000 strokes : 334.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 354.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F2

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :

Governor
Governor design. : RE36 (FD 57109 - FD 66213)
Governor no. :

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAE

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 4- 1

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm3/1000 strokes : 350.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 336.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 357.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 8.0

TEST POINT L1

| | | |
|-------------------------------|---|---------|
| Rated speed rpm | : | 300 |
| Uact V | : | 1.500 |
| Tolerance Volt | : | + 0.060 |
| Check tolerance | | |
| Volt | : | + 0.060 |
| Prestroke solenoid | | |
| Stroke mm | : | 8.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 40.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Speed | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 6.0 |
| Check tolerance | | |
| cm ³ /1000s. | : | 9.0 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| Uact V | : | 1.900 |
| Prestroke solenoid | | |
| Stroke mm | : | 10.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 117.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 10.0 |
| Check tolerance | | |
| cm ³ /1000s. | : | + 20.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113
Combination No. : 0 402 698 033F3
Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :
Governor
Governor design. : RE36 (FD 66214 - FD 66231)
Governor no. :

Cust. part No. : 0250745602

Customer-spec. information
Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 4- 1

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 344.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 331.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 351.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0

TEST POINT 1.1

| | | |
|-------------------------------|---|---------|
| Rated speed rpm | : | 300 |
| Uact V | : | 1.500 |
| Tolerance Volt | : | ± 0.060 |
| Check tolerance | | |
| Volt | : | ± 0.060 |
| Prestroke solenoid | | |
| Stroke mm | : | 8.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 34.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | ± 3.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 6.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 9.0 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| Uact V | : | 1.900 |
| Prestroke solenoid | | |
| Stroke mm | : | 10.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 111.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | ± 10.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | ± 20.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 804

Injection pump
Pump designation : PE8P120A720LS7205
EP type number : 0 412 628 895

Governor
Governor design. : RE30
Governor no. : 0 421 890 007

Cust. part No. : 1328039

Customer-spec. information
Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4
 : - 6- 8

Phasing : 0-45-90-135-180
 : -270-315

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 606C

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: 1K
Governor no. : 0 421 815 497

Cust. part No. : 9279607

Customer spec. information
Customer : LIEBHERR
Motor : D 926 TI-E
Power kW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

D04

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.85
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 212.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 500

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102
guide sleeve

travel mm : 10.05
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve

travel mm : 1.86
Tolerance mm : \pm 0.20

Rated speed rpm : 749
guide sleeve

travel mm : 6.11
Tolerance mm : \pm 0.25

Rated speed rpm : 480
guide sleeve

travel mm : 3.75
Tolerance mm : \pm 0.25

Rated speed rpm : 1330
guide sleeve

travel mm : 13.50
Tolerance mm : \pm 0.50

D05

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1179

Rack travel in mm : 12.80
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 212.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.85
Rated speed rpm : 935
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1085
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Rated speed rpm : 1145
Tolerance 1/min : \pm 0.50

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 500
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 350

CRT mm min. : $>$ 8.50

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.00
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 13.80
Tolerance mm : \pm 0.15

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.15

Rated speed rpm : 600
rack travel mm : 13.50
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1400
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Pressure hPa : 910

rack travel mm : 12.75
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1400
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.55
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 627

Injection pump
Pump designation : PES6P120A720LS7262
EP type number : 0 412 726 918

Governor
Governor design. : RQV350...925PA1331
Governor no. : 0 421 814 190

Cust. part No. : 0240746202

Customer-spec. information
Customer : MTU
Motor : 6R183-02

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.02
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 988
guide sleeve

travel mm : 8.65

Tolerance mm : ± 0.15

Rated speed rpm : 350

guide sleeve

travel mm : 1.48

Tolerance mm : ± 0.20

Rated speed rpm : 485

guide sleeve

travel mm : 3.02

Tolerance mm : ± 0.25

Rated speed rpm : 1160

guide sleeve

travel mm : 11.50

D09

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1055

Rack travel in mm : 11.30

Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 261.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 975

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1055

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1250

LOW IDLE

control lever

position degree : 65.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : +- 0.10

Rated speed rpm : 250
CRT mm min. : > 7.50
Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 12.30
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 8.05
Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 300
rack travel mm : 8.90
Tolerance mm : + 0.05

Pressure hPa : 800
rack travel mm : 11.65
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 257.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 5.0
Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000s. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 132.5
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : +- 4.0
Speed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000s. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.50
Tolerance mm : +- 0.20
Del. quantity
cm3/1000 strokes : 390.0
Tolerance
cm3/1000 strokes : +- 18.0
Check tolerance
cm3/1000s. : +- 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 996

Injection pump
Pump designation : PES6P120A720LS7262
EP type number : 0 412 726 918

Governor
Governor design. : RQV350...1050PA1040
Governor no. : 0 421 814 007

Cust. part No. : 0250746002

Customer-spec. information
Customer : MTU
Motor : 6R183-02
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 100
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.50

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 331.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1107
guide sleeve
travel mm : 8.03
Tolerance mm : \pm 0.20

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : \pm 0.15

Rated speed rpm : 900
guide sleeve
travel mm : 5.69
Tolerance mm : \pm 0.25

Rated speed rpm : 404
guide sleeve
travel mm : 2.50

Tolerance mm : \pm 0.25

Rated speed rpm : 454
guide sleeve
travel mm : 3.08
Tolerance mm : \pm 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.57
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1170

Rack travel in mm : 13.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 331.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 64.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.90
Tolerance mm : + 0.10

Rated speed rpm : 250
CRT mm min. : > 7.20

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.95
Tolerance mm : + 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.60

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1200
rack travel mm : 13.65
Tolerance mm : + 0.05

Pressure hPa : 400
rack travel mm : 9.35
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 230
Rated speed rpm : < 290

Check
speed 1/min : > 210
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 335.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 400.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96
Test oil : ISO 4113

Combination No. : 0 403 446 249

Injection pump
Pump designation : PES6MW100/720RS1197
EP type number : 0 413 406 185

Governor
Governor design. : RQV325...1350MW109K
Governor no. : 0 420 083 997

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8060.45.6000
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1350

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 102.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 330

Rack travel in mm : 8.20

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1411
guide sleeve
travel mm : 10.31
Tolerance mm : ± 0.25

Rated speed rpm : 325
guide sleeve
travel mm : 1.90
Tolerance mm : ± 0.25

Rated speed rpm : 832
guide sleeve
travel mm : 5.05
Tolerance mm : ± 0.25

Rated speed rpm : 346
guide sleeve
travel mm : 2.27
Tolerance mm : ± 0.25

Rated speed rpm : 396
guide sleeve
travel mm : 3.13
Tolerance mm : ± 0.25

Rated speed rpm : 380
guide sleeve
travel mm : 3.01
Tolerance mm : ± 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1475

Rack travel in mm : 13.00
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350
Aneroid pressure
hPa : 850
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 13.00
Rated speed rpm : 1440
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1550
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1650

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 330
rack travel mm : 8.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRF mm min. : $>$ 10.00

TORQUE CONTROL

Rated speed rpm : 1350
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.70
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.35
Tolerance mm : \pm 0.15

Rated speed rpm : 700
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.40
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 550
rack travel mm : 13.45
Tolerance mm : \pm 0.15

Pressure hPa : 350
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 265

Check
speed 1/min : $>$ 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 850
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : 850
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : 850
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

WARM-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

COLD-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : +- 8.0
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Rated speed rpm : 330
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113

Combination No. : 0 400 464 119

Injection pump
Pump designation : PES4A75D410/3RS1255
EP type number : 0 410 474 966

Governor
Governor design. : RSV325...1400A80495L
Governor no. : 0 420 232 302

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F4L912

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

D20

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 325
Rack travel in mm : 9.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.5
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : + 0.20
governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.20
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1700

rack travel mm : 4.00
Rated speed rpm : 1495

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 9.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 700
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.20
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 11.55
Tolerance mm : + 0.05

Rated speed rpm : 955
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113

Combination No. : 0 400 836 018

Injection pump
Pump designation : PES6A80D410/3RS2527
EP type number : 0 410 886 059

Governor
Governor design. : RQ275/1400AB798DL
Governor no. : 0 420 202 239

Cust. part No. :

Customer spec. information
Customer : KHD
Motor : F6L912
Power KW : 88.3

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 65.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 275

Rack travel in mm : 8.70

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Dimension a mm : 0.65

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 650

Rack travel in mm : 16.00
Tolerance mm : ± 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 7.0

RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1453

Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1550

Tolerance 1/min : ± 15

rack travel mm : 9.50

Tolerance mm : ± 0.50

Rated speed rpm : 1650

LOW IDLE

Testing:

Rated speed rpm : 275

rack travel mm : 8.70

Tolerance mm : ± 0.05

rack travel mm : 2.00

Rated speed rpm : 450

Tolerance 1/min : ± 20

Rated speed rpm : 100

CRT mm min. : > 7.00

Rated speed rpm : 600

CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 11.65

Tolerance mm : ± 0.05

Rated speed rpm : 650

rack travel mm : 13.10

Tolerance mm : ± 0.10

Rated speed rpm : 810

rack travel mm : 12.70

Tolerance mm : ± 0.10

Rated speed rpm : 1015

rack travel mm : 12.05

Tolerance mm : ± 0.15

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 1000
rack travel mm : 17.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.01.97
Test oil : ISO 4113
Combination No. : 0 400 865 017
Injection pump
Pump designation : PES5A80D410/3RS2526
EP type number : 0 410 885 004
Governor
Governor design. : RSV325...1400A8C540L
Governor no. : 0 420 232 311

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F5L912
Power KW : 62.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 65.5

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 2.0

Spread

Tolerance
cm3/1000 strokes : 2.0

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 3.5 |
|-------------------------------|---|-----|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 325 |
|-----------------|---|-----|

| | | |
|-------------------|---|------|
| Rack travel in mm | : | 7.60 |
|-------------------|---|------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.10 |
|--------------|---|--------|

| | | |
|-----------------------------------|---|-----|
| Del. quantity cm3/1000 strokes | : | 9.0 |
|-----------------------------------|---|-----|

| | | |
|-------------------------------|---|-------|
| Tolerance cm3/1000 strokes | : | + 3.0 |
|-------------------------------|---|-------|

| | | |
|-------------------------------|---|-------|
| Check tolerance cm3/1000S. | : | + 4.5 |
|-------------------------------|---|-------|

| | | |
|---------------------|---|-----|
| Spread Tolerance | : | 2.0 |
|---------------------|---|-----|

| | | |
|------------------|---|-----|
| cm3/1000 strokes | : | 2.0 |
|------------------|---|-----|

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 3.0 |
|-------------------------------|---|-----|

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|-----|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 0.65 |
| Tolerance mm | : | + 0.35 |

| | | |
|---|---|------|
| governor spring pre-tension click setting x | : | 5.50 |
|---|---|------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1380 |
|-----------------|---|------|

| | | |
|-------------------------|---|---|
| Aneroid pressure hPa | : | - |
|-------------------------|---|---|

| | | |
|-----------------------------------|---|------|
| Del. quantity cm3/1000 strokes | : | 65.5 |
|-----------------------------------|---|------|

| | | |
|-------------------------------|---|-------|
| Tolerance cm3/1000 strokes | : | + 0.5 |
|-------------------------------|---|-------|

| | | |
|-------------------------------|---|-------|
| Check tolerance cm3/1000S. | : | + 2.0 |
|-------------------------------|---|-------|

| | | |
|---------------------|---|-----|
| Spread Tolerance | : | 2.0 |
|---------------------|---|-----|

| | | |
|------------------|---|-----|
| cm3/1000 strokes | : | 2.0 |
|------------------|---|-----|

| | | |
|-------------------------------|---|-----|
| Check tolerance cm3/1000S. | : | 3.5 |
|-------------------------------|---|-----|

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 116.0 |
| tolerance degree | : | + 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | 10.50 |
| Rated speed rpm | : | 1425 |

| | | |
|-----------------|---|-----|
| Tolerance 1/min | : | + 5 |
|-----------------|---|-----|

| | | |
|----------------|---|------|
| rack travel mm | : | 4.00 |
|----------------|---|------|

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1470 |
|-----------------|---|------|

| | | |
|-----------------|---|------|
| Tolerance 1/min | : | + 15 |
|-----------------|---|------|

| | | |
|----------------|---|------|
| rack travel mm | : | 1.00 |
|----------------|---|------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.70 |
|--------------|---|--------|

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1650 |
|-----------------|---|------|

| | | |
|----------------|---|------|
| rack travel mm | : | 4.00 |
|----------------|---|------|

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1520 |
|-----------------|---|------|

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 69.0 |
| tolerance degree | : | + 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 325 |
|-----------------|---|-----|

| | | |
|----------------|---|------|
| rack travel mm | : | 8.10 |
|----------------|---|------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.10 |
|--------------|---|--------|

Testing:

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 325 |
|-----------------|---|-----|

| | | |
|----------------|---|------|
| rack travel mm | : | 7.60 |
|----------------|---|------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.10 |
|--------------|---|--------|

| | | |
|----------------|---|------|
| rack travel mm | : | 2.00 |
|----------------|---|------|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 655 |
|-----------------|---|-----|

| | | |
|-----------------|---|------|
| Tolerance 1/min | : | + 30 |
|-----------------|---|------|

TORQUE CONTROL

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1380 |
|-----------------|---|------|

| | | |
|----------------|---|-------|
| rack travel mm | : | 11.55 |
|----------------|---|-------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.05 |
|--------------|---|--------|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 500 |
|-----------------|---|-----|

| | | |
|----------------|---|-------|
| rack travel mm | : | 12.75 |
|----------------|---|-------|

| | | |
|--------------|---|--------|
| Tolerance mm | : | + 0.05 |
|--------------|---|--------|

Rated speed rpm : 900
rack travel mm : 12.25
Tolerance mm : \pm 0.15

Start interlock

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 092

Injection pump
Pump designation : PES6A80D410/3RS2527
EP type number : 0 410 886 059

Governor
Governor design. : RSV325...1400A8C540L
Governor no. : 0 420 232 311

Cust. part No. :

Customer-spec. information
Customer : KHD

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

E01

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 11.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 65.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 10.0

Tolerance

cm³/1000 strokes : ± 1.5

Check tolerance

cm³/1000S. : ± 3.5

Speed

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 4.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 65.5

Tolerance

cm³/1000 strokes : ± 0.5

Check tolerance

cm³/1000S. : ± 2.0

Speed

Tolerance

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 4.0

CONTROL LEVER

control lever

position degree : 117.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1425

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1460

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1680

rack travel mm : 4.00

Rated speed rpm : 1525

LOW IDLE

control lever

position degree : 71.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.00

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 670

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1380

rack travel mm : 11.50

Tolerance mm : ± 0.05

Rated speed rpm : 900

rack travel mm : 12.25

Tolerance mm : ± 0.15

Rated speed rpm : 400
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 400 266 143AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 32719459

Customer-spec. information

Customer : CUMMINS
Motor : 6BT-145PS/2600

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

E04

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 8.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 7.10

Rated speed rpm : 1345

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1415

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1570

rack travel mm : 4.00

Rated speed rpm : 1420

LOW IDLE

control lever
position degree : 80.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.50

Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 350

rack travel mm : 6.00

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 555

Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 8.10
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.55
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : --
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 7.5

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 188AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921160

Customer-spec. information

Customer : CDC
Motor : 6 CT/207Ps/1800

TEST BENCH REQUIREMENTS

Inlet line : 2.0

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

E07

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 830

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 139.0

Tolerance
cm³/1000 strokes : ± 1.0

| | |
|-------------------------------|---------|
| Check tolerance cm3/1000S. | : + 3.5 |
| <hr/> | |
| Spreed | |
| Tolerance cm3/1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm3/1000S. | : 6.5 |
| <hr/> | |

| | |
|-----------------------------------|----------|
| Rated speed rpm | : 425 |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm3/1000 strokes | : 11.5 |
| Tolerance cm3/1000 strokes | : + 2.0 |
| Check tolerance cm3/1000S. | : + 4.5 |
| Spreed | |
| Tolerance cm3/1000 strokes | : 6.0 |
| Check tolerance cm3/1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : FREE |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------------------------|---------|
| Rated speed rpm | : 830 |
| Aneroid pressure hPa | : - |
| Del. quantity cm3/1000 strokes | : 139.0 |
| Tolerance cm3/1000 strokes | : + 1.0 |

| | |
|-------------------------------|---------|
| Check tolerance cm3/1000S. | : + 3.5 |
| Spreed | |
| Tolerance cm3/1000 strokes | : 4.0 |
| Check tolerance cm3/1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 102.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 12.40 |
| Rated speed rpm | : 930 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 970 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1100 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 975 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 76.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 425 |
| rack travel mm | : 4.70 |
| Tolerance mm | : + 0.10 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 425 |
| rack travel mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| <hr/> | |
| rack travel mm | : 2.00 |
| Rated speed rpm | : 460 |
| Tolerance 1/min | : + 30 |

TORQUE CONTROL

Rated speed rpm : 830
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 197AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921120

Customer-spec. information

Customer : CDC
Motor : 6 CT/180Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

E10

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-50-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

Rated speed rpm : 450

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : FREE
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20
 governor spring
 pre-tension
 click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 900
 Del. quantity
 cm³/1000 strokes : 104.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.5

CONTROL LEVER

control lever
 position degree : 53.0
 tolerance degree : ± 4.0

RATED SPEED
 rack travel mm : 10.20

Rated speed rpm : 1145
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1235
 Tolerance 1/min : ± 15
 rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1390
 rack travel mm : 4.00
 Rated speed rpm : 1240

LOW IDLE

control lever
 position degree : 33.0
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
 rack travel mm : 5.30
 Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 450
 rack travel mm : 5.80
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 570
 Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 11.25
 Tolerance mm : ± 0.05

Rated speed rpm : 750
 rack travel mm : 12.10
 Tolerance mm : ± 0.10

Rated speed rpm : 1100
 rack travel mm : 10.25
 Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.45
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 425
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Pressure hPa : 305
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 114.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0

Tolerance

cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 197AB

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3915996

Customer-spec. information

Customer : CDC
Motor : 6 CT/202Ps/220G

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : +- 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.15
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 119.5

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 450
 Rack travel in mm : 5.50
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : FREE
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20
 governor spring
 pre-tension
 click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 900
 Del. quantity
 cm³/1000 strokes : 119.5
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.5

CONTROL LEVER

control lever
 position degree : 46.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 11.10
 Rated speed rpm : 1145
 Tolerance 1/min : \pm 5
 rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : \pm 15
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1355
 rack travel mm : 4.00
 Rated speed rpm : 1205

LOW IDLE

control lever
 position degree : 26.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
 rack travel mm : 5.00
 Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
 rack travel mm : 5.50
 Tolerance mm : \pm 0.10
 rack travel mm : 2.00
 Rated speed rpm : 510
 Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 12.15
 Tolerance mm : \pm 0.05
 Rated speed rpm : 750
 rack travel mm : 13.30
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.45
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Pressure hPa : 385
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Start interlock.

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 204AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921107

Customer-spec. information
Customer : CDC
Motor : 6 CT/177Ps/2500

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 G47

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 100.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 14.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 100.5
Tolerance
cm³/1000 strokes : + 1.0

E17

Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.80
Rated speed rpm : 1330
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1405
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1565

rack travel mm : 4.00
Rated speed rpm : 1415

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 525
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113
Combination No. : 0 400 866 204AB

Injection pump
Pump designation :
EP type number :

Governor
Governor design :
Governor no. :

Cust. part No. : 3921116

Customer-spec. information
Customer : CDC
Motor : 6 CT/123Ps/2100

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 100.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 500

Rack travel in mm : 5.70

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 1.0

E20

Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 54.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.70
Rated speed rpm : 1100
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 35.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 5.20
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 615
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921143

Customer-spec. information

Customer : CDC
Motor : 6 CT/173Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

E22

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *Nw : ± 0.75

Start of delivery mark

*Nw after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 124.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 124.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.65
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1355

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 147.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AB

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921099

Customer-spec. information

Customer : CDC
Motor : 6 CT/210Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 123.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 123.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 54.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.30
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1410

rack travel mm : 4.00
Rated speed rpm : 1260

LOW IDLE

control lever
position degree : 32.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 525
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AC

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921089

Customer-spec. information

Customer : CDC
Motor : 6 C /155Ps/2500

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 9.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400
 Rack travel in mm : 5.70
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 16.5
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : FREE
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20
 governor spring
 pre-tension
 click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 80.5
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 6.5

CONTROL LEVER

F01

control lever
 position degree : 95.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 8.60
 Rated speed rpm : 1100
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1135
 Tolerance 1/min : \pm 15

rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1290

rack travel mm : 4.00
 Rated speed rpm : 1140

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 5.20
 Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
 rack travel mm : 5.70
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 470
 Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 9.65
 Tolerance mm : \pm 0.05

Rated speed rpm : 750
 rack travel mm : 10.50
 Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 400 366 203AD

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921144

Customer-spec. information

Customer : CDC
Motor : 6 CT/215Ps/2500

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F03

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

F04

control lever
position degree : 106.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1525

rack travel mm : 4.00
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 124.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AE

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921137

Customer-spec. information
Customer : CDC
Motor : 6 CT

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F06

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 106.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

F07

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.30
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1360

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 480
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AG

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3915955

Customer-spec. information
Customer : CDC
Motor : 5 CT

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F09

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 106.5
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1360

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.90
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 480
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AH

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3915965

Customer-spec. information
Customer : CDC
Motor : 6 CT

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 100

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F12

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 113.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 6.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 113.5
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

F13

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 6.20
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.05
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : ± 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 135.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 400 874 248

Injection pump
Pump designation : PES4A90D410RS2728
EP type number : 0 410 894 030

Governor
Governor design. : RSV350...750AOC2240
: 3L
Governor no. : 0 420 232 559

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM364
Power KW : 39.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °BW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 58.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 350

Rack travel in mm : 8.60

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(3) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 58.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 80.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 11.00

Rated speed rpm : 784
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 11.00

Rated speed rpm : 785
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 11.00

Rated speed rpm : 786
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 11.00

Rated speed rpm : 787
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 754
rack travel mm : 11.00

Rated speed rpm : 788
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 11.00

Rated speed rpm : 789
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 8.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 15

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Start interlock

F17

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.70
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 036 762

Injection pump
Pump designation : PES6P110A12URS3353
EP type number : 0 412 016 752

Governor
Governor design. : RQV450...1100PA1233
: 1K
Governor no. : 0 421 815 479

Cust. part No. : 3926776

Customer-spec. information
Customer : CDC
Motor : 6CTA
Power kW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 13.00
Difference * CS : 1.20

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500

Rack travel in mm : 6.00

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1214
guide sleeve
travel mm : 8.09
Tolerance mm : + 0.15

Rated speed rpm : 500
guide sleeve
travel mm : 1.82
Tolerance mm : + 0.25

Rated speed rpm : 890
guide sleeve
travel mm : 4.75
Tolerance mm : + 0.25

Rated speed rpm : 1570
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 206.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 11.45

Rated speed rpm : 1170

Tolerance 1/min : + 15

rack travel mm : 7.95

Rated speed rpm : 1230

Tolerance 1/min : + 5

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 79.0
tolerance degree : + 6.0

Control Lever difference

Grad : 38.0
tolerance degree : + 6.0

Testing:

Rated speed rpm : 500

rack travel mm : 6.00

Tolerance mm : + 0.20

Rated speed rpm : 400
 CRT mm min. : > 7.50
 Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 13.15
 Tolerance mm : ± 0.05

Rated speed rpm : 750
 rack travel mm : 12.55
 Tolerance mm : ± 0.20

Rated speed rpm : 1100
 rack travel mm : 12.60
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
 Pressure hPa : 1200

Pressure hPa : -
 Rated speed rpm : 1000
 rack travel mm : 10.15
 Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1000
 Pressure hPa : 720
 rack travel mm : 12.20
 Tolerance mm : ± 0.30

Pressure hPa : 580
 rack travel mm : 11.20
 Tolerance mm : ± 0.20

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 380

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 390

FUEL DELIVERY CHARACTERISTICS

F20

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 197.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 190.5
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 5.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 124.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : ± 0.50
 Del. quantity
 cm³/1000 strokes : 161.0
 Tolerance
 cm³/1000 strokes : ± 20.0
 Check tolerance
 cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 0 402 736 869

Injection pump
Pump designation : PES6P120A120RS7352
EP type number : 0 412 726 923

Governor
Governor design. : RQV350...1000PA1174K
Governor no. : 0 421 815 440

Cust. part No. : 3928155

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

F22

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 15.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 235.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000
guide sleeve
travel mm : 8.20
Tolerance mm : ± 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : ± 0.10

Rated speed rpm : 600
guide sleeve
travel mm : 5.30
Tolerance mm : ± 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.30
Tolerance mm : ± 0.20

Rated speed rpm : 1200

guide sleeve
travel mm : 9.80
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 13.50
Rated speed rpm : 1155
Tolerance 1/min : ± 15

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : ± 5

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 6.0

Control lever difference
Grad : 49.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 275

CRT mm min. : > 8.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 15.15
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.70
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
rack travel mm : 14.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : 9.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 825
rack travel mm : 13.80
Tolerance mm : \pm 0.20

Pressure hPa : 370
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 210.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 403 466 161

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A379
Governor no. : 0 420 085 262

Cust. part No. : 3926882

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 161.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.20

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

F27

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.90

Rated speed rpm : 1160

Tolerance 1/min : \pm 5

rack travel mm : 5.80

Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1375

rack travel mm : 5.80

Rated speed rpm : 1235

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 20.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.70
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.23
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Rated speed rpm : 950
rack travel mm : 12.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 620
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) w400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 403 466 169

Injection pump
Pump designation : PES6MW100/120RS1242
EP type number : 0 413 406 241

Governor
Governor design. : RSV500...1100MW5A385
Governor no. : 0 420 085 270

Cust. part No. : 3926885

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G02

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

603

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 7.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1300

rack travel mm : 7.00
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 24.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.60
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.80
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : ± 0.20

Rated speed rpm : 1000
rack travel mm : 13.30
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.80
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.15
Tolerance mm : ± 0.20

Pressure hPa : 560
rack travel mm : 11.50
Tolerance mm : ± 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 040

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1100A0C920R
Governor no. : F 002 A20 240

Cust. part No. : 3930147

Customer-spec. information
Customer : CDC
Motor : 4BT590
Power KW : 60.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 99.5
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.80
Rated speed rpm : 1165
Tolerance 1/min : ± 5

rack travel mm : 5.20
Rated speed rpm : 1215
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

rack travel mm : 5.20
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 81.0
tolerance degree : ± 4.0

Control lever difference
Grad : 18.5
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Rated speed rpm : 750

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4413

Combination No. : 0 400 074 883

Injection pump
Pump designation : PFS/4M60C320RS185
EP type number : 0 410 064 006

Governor
Governor design. : RSF375/1900M78
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-130-270

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 375

Rack travel in mm : 5.90

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 6.5

Tolerance

cm³/1000 strokes : ± 0.5

Spread

Tolerance

cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity

cm³/1000 strokes : 59.5

Tolerance

cm³/1000 strokes : ± 0.7

Check tolerance

cm³/1000S. : ± 1.7

Spread

Tolerance

cm³/1000 strokes : 3.0

Check tolerance

cm³/1000S. : 3.5

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 8.30

Tolerance mm : ± 0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

LOW IDLE

control lever

position degree : 12.0

tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.90

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.20

Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 200

rack travel mm : 13.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 5.90

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm : ± 0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm : ± 0.10

Rated speed rpm : 1900

rack travel mm : 12.50

Tolerance mm : ± 0.10

Rated speed rpm : 900

rack travel mm : 11.15

Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
 Ref. pressure
 ALDA / ADA hPa : 1600
 rack travel mm : -0.25
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900
 Ref. pressure
 ALDA / ADA hPa : 1100
 rack travel mm : -2.65
 Tolerance mm : \pm 0.10

Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -4.30
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1850
 Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

Ref. pressure
 ALDA / ADA hPa : 1850
 Rated speed rpm : 1900
 Spreed
 Del. quantity
 cm³/1000 strokes : 55.5
 Tolerance
 cm³/1000 strokes : \pm 1.2
 Check tolerance
 cm³/1000S. : \pm 2.2
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 900

Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 strokes : \pm 0.7
 Check tolerance
 cm³/1000S. : \pm 1.7
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 strokes : \pm 0.7
 Check tolerance
 cm³/1000S. : \pm 1.7
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1850
 Rated speed rpm : 2200
 rack travel mm : 8.30
 Tolerance mm : \pm 0.20
 Del. quantity
 cm³/1000 strokes : 31.0
 Tolerance
 cm³/1000 strokes : \pm 2.2
 Check tolerance
 cm³/1000S. : \pm 3.2
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm³/1000 strokes : 54.3
 Tolerance
 cm³/1000 strokes : \pm 4.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

End of test specification sheet

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spread
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 42.00

control lever
position degree : < 39.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 12.0
tolerance degree : ± 2.0

Rated speed rpm : 425

Rack travel in mm : 7.50
Tolerance mm : ± 0.80
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : ± 3.5
Check tolerance
cm³/1000S. : ± 4.5
Vacuum hPa : 450.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Combination No. : 0 402 646 625

Injection pump
Pump designation : FE6P12GA52ORS7300
EP type number : 0 412 626 886

Governor
Governor design. : RQV275...1000PA1077K
Governor no. : 0 421 815 358

Cust. part No. : 1280165

Customer-spec. information
Customer : DAF
Motor : WS 242 M
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 15.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 228.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045
guide sleeve
travel mm : 9.83
Tolerance mm : + 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.14
Tolerance mm : + 0.20

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334

guide sleeve
travel mm : 3.08
Tolerance mm : + 0.25

Rated speed rpm : 400
guide sleeve
travel mm : 3.92
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1140

Rack travel in mm : 14.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 228.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.00
Rated speed rpm : 1037

Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1165

Tolerance 1/min : + 15
 Check
 speed 1/min : + 20
 rack travel mm : 0.70
 Tolerance mm : + 0.70
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : 5.30
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 375
 Tolerance 1/min : + 20

Rated speed rpm : 175

CRT mm min. : > 8.50

TORQUE CONTROL

Rated speed rpm : 980
 rack travel mm : 15.05
 Tolerance mm : + 0.05

Rated speed rpm : 850
 rack travel mm : 14.95
 Tolerance mm : + 0.10

Rated speed rpm : 750
 rack travel mm : 14.95
 Tolerance mm : + 0.10

Rated speed rpm : 600
 rack travel mm : 14.60
 Tolerance mm : + 0.10

Rated speed rpm : 500
 rack travel mm : 14.40
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
 Pressure hPa : 1500
 rack travel mm : 15.05
 Tolerance mm : + 0.05

Pressure hPa : -
 Rated speed rpm : 980
 rack travel mm : 12.30
 Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 480
 rack travel mm : 14.35
 Tolerance mm : + 0.05

Pressure hPa : 270
 rack travel mm : 12.90
 Tolerance mm : + 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 238.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 157.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 402 646 653

Injection pump
Pump designation : PE6P120A32ORS7360
EP type number : 0 412 626 936

Governor
Governor design. : RQ275/1150PA1193
Governor no. : 0 421 801 752

Cust. part No. : 1294723/2

Customer-spec. information
Customer : DAF
Motor : GS 200 M
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.50
Tolerance mm : ± 5.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °IW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.70

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 178.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1205
guide sleeve
travel mm : 6.49
Tolerance mm : + 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.94
Tolerance mm : + 0.10

Rated speed rpm : 1150
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 353
guide sleeve
travel mm : 4.33
Tolerance mm : + 0.10

Rated speed rpm : 440
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1360
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 550

Rack travel in mm : 15.80
Tolerance mm : + 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 178.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.70
Rated speed rpm : 1202
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.70
Tolerance mm : ± 0.05

Rated speed rpm : 1150
rack travel mm : 11.70
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.70
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 8.40
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 390
rack travel mm : 10.95
Tolerance mm : ± 0.05

Pressure hPa : 210
rack travel mm : 9.50
Tolerance mm : ± 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 783

Injection pump
Pump designation : PE8P120A320LS7906
EP type number : 0 412 628 921

Governor
Governor design. : RQ750PA1326
Governor no. : 0 421 801 815

Cust. part No. : 04222 3938 KY

Customer-spec. information

Customer : KHD
Motor : BF8M1015/C
Power KW : 318.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 5
: - 3- 1

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 315.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 365.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 715
guide sleeve
travel mm : 4.23
Tolerance mm : \pm 0.15

Rated speed rpm : 610
guide sleeve
travel mm : 0.72
Tolerance mm : \pm 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 14.89
Tolerance mm : \pm 0.25

Rated speed rpm : 862

guide sleeve
travel mm : 12.00
Tolerance mm : \pm 0.25

Rated speed rpm : 930
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 365.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 11.60

Rated speed rpm : 780
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 751
rack travel mm : 11.60

Rated speed rpm : 781
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 752
rack travel mm : 11.60

Rated speed rpm : 782
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 753
rack travel mm : 11.60

Rated speed rpm : 783
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 754
rack travel mm : 11.60

Rated speed rpm : 784
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 900

Rated speed rpm : 755
rack travel mm : 11.60

Rated speed rpm : 785
Tolerance 1/min : \pm 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : \pm 0.50

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 560

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 580

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 793

Injection pump
Pump designation : PE8P120A320LS7873
EP type number : 0 412 628 880

Governor
Governor design. : RQ300/1050PA1268
Governor no. : 0 421 801 802

Cust. part No. : 04223118KY0165-17

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
mfn. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
 : - 4- 3

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.60
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 340.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|--|----------|
| Rated speed rpm | : 300 |
| Rack travel in mm | : 5.00 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 20.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 6.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 1106 |
| guide sleeve travel mm | : 6.53 |
| Tolerance mm | : ± 0.15 |
| Rated speed rpm | : 300 |
| guide sleeve travel mm | : 1.66 |
| Tolerance mm | : ± 0.20 |
| Rated speed rpm | : 1050 |
| guide sleeve travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |
| Rated speed rpm | : 458 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 4.21 |
| Tolerance mm | : ± 0.10 |

| | |
|---------------------------|----------|
| Rated speed rpm | : 580 |
| guide sleeve travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |

| | |
|---------------------------|----------|
| Rated speed rpm | : 1290 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : ± 0.50 |

GUIDE SLEEVE POSITION

| | |
|----------------------------------|----------|
| control lever position degree | : 90 |
| Rated speed rpm | : 700 |
| Rack travel in mm | : 10.20 |
| Tolerance mm | : ± 0.80 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1050 |
| Aneroid pressure hPa | : 1600 |
| Del. quantity cm ³ /1000 strokes | : 340.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 99.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 13.60 |
| Rated speed rpm | : 1100 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1210 |
| Tolerance 1/min | : ± 15 |

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 6.20

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.60
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1600
rack travel mm : 14.60
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 570
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Pressure hPa : 1100
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.40
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97

Test oil : ISO 4113

Combination No. : 0 402 676 838

Injection pump

Pump designation : PE6P120A320LS7909

EP type number : 0 412 626 963

Governor

Governer design. : RSV550...800POA671

Governer no. : 0 421 833 589

Cust. part No. : 0270743402

Customer-spec. information

Customer : MB-NFZ

Motor : OM441 LA eoromot

Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 105

Tolerance l/h : ± 15.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-

: 1

Phasing : 0-60-120-180-240

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 780

Rack travel in mm : 14.50

| | |
|-----------------------------------|-----------|
| Tolerance mm | : +- 0.05 |
| <hr/> | |
| Del. quantity cm3/1000 strokes | : 229.0 |
| <hr/> | |
| Tolerance cm3/1000 strokes | : +- 1.0 |
| <hr/> | |
| Check tolerance cm3/1000S. | : +- 4.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm3/1000 strokes | : 6.0 |
| <hr/> | |
| Check tolerance cm3/1000S. | : 9.0 |
| <hr/> | |

| | |
|-----------------------------------|-----------|
| Rated speed rpm | : 550 |
| <hr/> | |
| Rack travel in mm | : 4.30 |
| Tolerance mm | : +- 0.10 |
| Del. quantity cm3/1000 strokes | : 19.0 |
| Tolerance cm3/1000 strokes | : +- 3.0 |
| Check tolerance cm3/1000S. | : +- 6.0 |
| Spreed | |
| Tolerance cm3/1000 strokes | : 8.0 |
| Check tolerance cm3/1000S. | : 12.0 |

(E) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|-----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : +- 0.20 |
| <hr/> | |
| governor spring pre-tension click setting x | : 2.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------------------------|----------|
| Rated speed rpm | : 780 |
| Aneroid pressure hPa | : 1200 |
| Del. quantity cm3/1000 strokes | : 229.0 |
| Tolerance cm3/1000 strokes | : +- 1.0 |
| Check tolerance cm3/1000S. | : +- 4.0 |
| Spreed | |
| Tolerance cm3/1000 strokes | : 6.0 |
| Check tolerance cm3/1000S. | : 9.0 |

CONTROL LEVER

| | |
|----------------------------------|--------|
| control lever position degree | : 84.0 |
|----------------------------------|--------|

ASSEMBLY GOVERNOR SETTING

| | |
|-----------------|-----------|
| Rated speed rpm | : 830 |
| rack travel mm | : 13.50 |
| <hr/> | |
| Rated speed rpm | : 890 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |
| <hr/> | |
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|---------|
| Rated speed rpm | : 831 |
| rack travel mm | : 13.50 |

| | |
|-----------------|--------|
| Rated speed rpm | : 891 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|---------|
| Rated speed rpm | : 832 |
| rack travel mm | : 13.50 |

| | |
|-----------------|--------|
| Rated speed rpm | : 892 |
| Tolerance 1/min | : +- 4 |
| rack travel mm | : 4.00 |

| | |
|-----------------|-----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : +- 0.55 |
| Rated speed rpm | : 1300 |

Rated speed rpm : 833
rack travel mm : 13.50

Rated speed rpm : 893
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 834
rack travel mm : 13.50

Rated speed rpm : 894
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 835
rack travel mm : 13.50

Rated speed rpm : 895
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0

Testing:

Rated speed rpm : 550
rack travel mm : 4.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 575
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 780
rack travel mm : 14.50
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 14.50
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Pressure hPa : 400
rack travel mm : 1.20
Tolerance mm : + 0.05

Pressure hPa : 700
rack travel mm : 3.60
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 234.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113

Combination No. : 0 402 696 033

Injection pump
Pump designation : PE6H120/320LS4-2
EP type number : 0 412 626 003

Governor
Governor design. : RE36
Governor no. : 0 421 890 359

Cust. part No. : 0250745502

Customer-spec. information
Customer : MB-NFZ
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in. mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(F, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm3/1000 strokes : 367.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

TEST POINT L1

| | | |
|--------------------|---|---------|
| Rated speed rpm | : | 300 |
| Uact V | : | 1.500 |
| Tolerance Volt | : | + 0.060 |
| Check tolerance | | |
| Volt | : | + 0.060 |
| Prestroke solenoid | | |
| Stroke mm | : | 8.00 |
| Del. quantity | | |
| cm3/1000 strokes | : | 25.0 |
| Tolerance | | |
| cm3/1000 strokes | : | + 3.0 |
| Speed | | |
| Tolerance | | |
| cm3/1000 strokes | : | 6.0 |
| Check tolerance | | |
| cm3/1000S. | : | 9.0 |

STARTING FUEL DELIVERY

| | | |
|--------------------|---|--------|
| Rated speed rpm | : | 100 |
| Uact V | : | 1.900 |
| Prestroke solenoid | | |
| Stroke mm | : | 10.00 |
| Del. quantity | | |
| cm3/1000 strokes | : | 106.0 |
| Tolerance | | |
| cm3/1000 strokes | : | + 10.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 0 402 736 889AA

Injection pump
Pump designation : PES6P120A12ORS7390
EP type number :

Governor
Governor design. : RQV350...1100PA1244K
Governor no. :

Cust. part No. : 3282739

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
mfn. l/h : 90
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 7.70
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.70

| | |
|--|----------|
| Tolerance mm | : + 0.05 |
| <hr/> | |
| Del. quantity cm ³ /1000 strokes | : 173.0 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| <hr/> | |
| Spread | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 9.0 |
| <hr/> | |

Rated speed rpm : 350

| | |
|--|----------|
| Rack travel in mm | : 4.60 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 18.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 5.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 7.0 |
| Check tolerance cm ³ /1000S. | : 11.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|----------------------------------|-------|
| control lever position degree | : - 1 |
|----------------------------------|-------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1100 |
| Aneroid pressure hPa | : 1500 |
| Del. quantity cm ³ /1000 strokes | : 173.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |

H06

| | |
|--|---------|
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 12.70 |
| Rated speed rpm | : 1145 |
| Tolerance 1/min | : + 5 |

| | |
|----------------------|--------|
| Check speed 1/min | : + 20 |
|----------------------|--------|

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1350 |

LOW IDLE

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 350 |
| rack travel mm | : 4.60 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 350 |
|-----------------|-------|

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 1100 |
| rack travel mm | : 13.70 |
| Tolerance mm | : + 0.05 |

| | |
|-----------------|----------|
| Rated speed rpm | : 700 |
| rack travel mm | : 13.85 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 12.95 |
| Tolerance mm | : + 0.15 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | |
|-----------------|----------|
| Rated speed rpm | : 700 |
| Pressure hPa | : 1500 |
| rack travel mm | : 13.20 |
| Tolerance mm | : + 0.10 |

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 10.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 400
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 908

Injection pump
Pump designation : PES6P120A320R67232
EP type number : 0 412 726 846

Governor
Governor design. : RQV275...1000PA1001
Governor no. : 0 421 813 931

Cust. part No. : CCEP 5111A

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062045 E/3
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 19.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -8.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1070
guide sleeve
travel mm : 8.30
Tolerance mm : ± 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.30
Tolerance mm : ± 0.20

Rated speed rpm : 850

guide sleeve
travel mm : 6.60
Tolerance mm : ± 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 3.90
Tolerance mm : ± 0.30

Rated speed rpm : 1400
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1165

Rack travel in mm : 13.60
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 302.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : ± 5

rack travel mm : -9.70
Rated speed rpm : 1225
Tolerance 1/min : ± 15

rack travel mm : -13.25
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 247.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -8.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm max. : $<$ -6.70

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : -5.50

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -4.20
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : -3.50
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -0.85
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 244.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.97
Test oil : ISO 4113

Combination No. : 0 402 748 812

Injection pump
Pump designation : PES8P120A720LS7425
EP type number : 0 412 728 814

Governor
Governor design. : RQV350...1200PA1310K
Governor no. : 0 421 815 541

Cust. part No. : CCEP 5164 66-136

Customer spec. information
Customer : RENAULT V.I.
Motor : MACK E9-750
Power KW : 552.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 190
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 8- 4
 : - 6- 3

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.00
Difference ° CS : 4.25

CRT ZERO POSITION

Rack travel in mm : 13.30
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 305.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : -6.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 53.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1255
guide sleeve
travel mm : 9.50
Tolerance mm : \pm 0.15

H13

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : \pm 0.20

Rated speed rpm : 833
guide sleeve
travel mm : 5.90
Tolerance mm : \pm 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.27
Tolerance mm : \pm 0.25

Rated speed rpm : 1570
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1390

Rack travel in mm : 12.30
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 305.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1250
 Tolerance 1/min : + 5

 rack travel mm : -9.30
 Rated speed rpm : 1375
 Tolerance 1/min : + 15

 rack travel mm : -12.75
 Tolerance mm : + 0.55
 Rated speed rpm : 1450

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : -6.40
 Tolerance mm : + 0.10

 Rated speed rpm : 225

 CRT mm max. : < -4.40

 Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1200

 Rated speed rpm : 900
 rack travel mm : -0.65
 Tolerance mm : + 0.10

 Rated speed rpm : 600
 rack travel mm : -1.60
 Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
 Pressure hPa : 1200
 Tolerance mm : + 0.10

 Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -3.30

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200

 Pressure hPa : 640
 rack travel mm : -2.70
 Tolerance mm : + 0.20

 Pressure hPa : 950
 rack travel mm : -0.75
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 250
 Rated speed rpm : < 275

 Check
 speed 1/min : > 240
 Check
 speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 293.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

 Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 188.5
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : + 0.50
 Del. quantity
 cm³/1000 strokes : 365.0
 Tolerance
 cm³/1000 strokes : + 15.0
 Check tolerance
 cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113
Combination No. : 0 402 796 033

Injection pump
Pump designation : PES6H120/720LS7
EP type number : 0 412 726 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 360

Cust. part No. : 0250745702

Customer-spec. information
Customer : MB-NFZ
Motor : OM 447 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(F, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.650
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 2.750
Prestroke solenoid
Stroke mm : 6.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : +/- 5.0
Check tolerance
cm³/1000S. : +/- 8.0

Rated speed rpm : 550
Uact V : 2.350
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : +/- 8.0
Check tolerance
cm³/1000S. : +/- 11.0

TEST POINT L1

| | | |
|-------------------------------|---|---------|
| Rated speed rpm | : | 300 |
| Uact V | : | 1.440 |
| Tolerance Volt | : | + 0.060 |
| Check tolerance | | |
| Volt | : | + 0.060 |
| Prestroke solenoid | | |
| Stroke mm | : | 9.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 25.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 6.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 9.0 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| Uact V | : | 1.900 |
| Prestroke solenoid | | |
| Stroke mm | : | 9.00 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 104.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 10.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.96

Test oil : ISO 4113

Combination No. : 0 402 796 204

Injection pump

Pump designation : PES6H120/720/3LS1005

: -1

EP type number : 0 412 726 204

Governor

Governor design. : RE33

Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7539

Customer-spec. information

Customer : MAN

Motor : D 2866 LF 16

Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 10.00

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 328.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000s. : +/- 8.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 310.0

Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : ± 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 402 796 814

Injection pump
Pump designation : PES6P120A72ORS7367
EP type number : 0 412 726 932

Governor
Governor design. : RE30
Governor no. : 0 421 890 026

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 846U.41.600U

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 2.900
Del. quantity
cm3/1000 strokes : 296.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500
Uact V : 2.690
Del. quantity
cm3/1000 strokes : 238.0
Tolerance
cm3/1000 strokes : +/- 3.0
Check tolerance
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.600
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.080
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : +/- 3.0
Speed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113
Combination No. : 0 402 798 201
Injection pump
Pump designation : PES8H120/720LS1009
EP type number : 0 412 728 202
Governor
Governor design. : RE33
Governor no. : 0 421 890 362

Cust. part No. : 1364711

Customer-spec. information
Customer : SCANIA
Motor : DSC 1413/15
Power KW : 390.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H25

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 3- 4
 : - 6- 8

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.150
Prestroke solenoid
Stroke mm : 7.60
Del. quantity
cm3/1000 strokes : 344.5
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 6.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.450
Prestroke solenoid
Stroke mm : 8.20
Del. quantity
cm3/1000 strokes : 365.0
Tolerance
cm3/1000 strokes : +/- 4.0
Check tolerance
cm3/1000S. : +/- 7.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 403 244 056

Injection pump
Pump designation : PES4MW100/72GRS1525
EP type number : 0 413 204 022

Governor
Governor design. : RQ300/1300MW160
Governor no. : 0 420 082 077

Cust. part No. : 0270749502

Customer-spec. information
Customer : MB-NFZ
Motor : OM364LA
Power KW : 103.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 3.90
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353
guide sleeve
travel mm : 6.52
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.12
Tolerance mm : \pm 0.20

Rated speed rpm : 1300
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 458
guide sleeve
travel mm : 2.45
Tolerance mm : \pm 0.10

Rated speed rpm : 750
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1570
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : VL

control lever
position degree : 109
Rated speed rpm : 800

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 119.0
Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1575

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.90
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 4.30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 400
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 200
rack travel mm : 0.50
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed

Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113
Combination No. : 0 403 474 008I
Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107
Governor
Governor design. : RSV400...1000MW1A333
Governor no. : 0 420 085 118

Cust. part No. : 9881020

Customer-spec. information
Customer : LIEBHERR
Motor : D924T-E A2
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 049
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 740

Rack travel in mm : 11.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

| | | |
|--|---|-----|
| Check tolerance cm ³ /1000S. | : | 7.5 |
|--|---|-----|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 400 |
|-----------------|---|-----|

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 5.00 |
| Tolerance mm | : | + 0.10 |

| | | |
|--|---|-----|
| Del. quantity cm ³ /1000 strokes | : | 9.0 |
| Tolerance | : | |

| | | |
|--|---|-------|
| cm ³ /1000 strokes | : | + 2.0 |
| Check tolerance cm ³ /1000S. | : | + 4.5 |

| | | |
|--|---|-----|
| Speed Tolerance | : | |
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 5.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|-----|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 0.65 |
| Tolerance mm | : | + 0.35 |

| | | |
|---|---|------|
| governor spring pre-tension click setting x | : | 1.50 |
|---|---|------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|--|---|-------|
| Rated speed rpm | : | 740 |
| Aneroid pressure hPa | : | - |
| Del. quantity cm ³ /1000 strokes | : | 141.5 |
| Tolerance | : | |
| cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance cm ³ /1000S. | : | + 4.0 |
| Speed Tolerance | : | |
| cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 81.5 |
| tolerance degree | : | + 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | 10.45 |
| Rated speed rpm | : | 760 |
| Tolerance 1/min | : | + 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 775 |
| Tolerance 1/min | : | + 5 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 1.00 |
| Tolerance mm | : | + 0.70 |
| Rated speed rpm | : | 950 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 790 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 66.5 |
| tolerance degree | : | + 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 3.75 |
| Tolerance mm | : | + 0.10 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 5.00 |
| Tolerance mm | : | + 0.10 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 500 |
| Tolerance 1/min | : | + 30 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

| | | |
|-------------|---|---------|
| CRT mm min. | : | > 19.00 |
|-------------|---|---------|

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 740 |
| rack travel mm | : | 11.45 |
| Tolerance mm | : | + 0.05 |

Rated speed rpm : 500
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : --
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113
Combination No. : 0 403 476 147
Injection pump
Pump designation : PES6MW100/720RS1131
: 1
EP type number : 0 413 406 165
Governor
Governor design. : RSV750...1200MWOA329
: -17
Governor no. : 0 420 085 291
Cust. part No. : 0270747902

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 163.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1180
Rack travel in mm : 13.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.70

Tolerance mm : ± 0.25

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

governor spring

pre-tension

click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 104.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 103.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1400

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230

rack travel mm : 12.10

Rated speed rpm : 1300

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1231

rack travel mm : 12.10

Rated speed rpm : 1301

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1232

rack travel mm : 12.10

Rated speed rpm : 1302

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1233

rack travel mm : 12.10

Rated speed rpm : 1303

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1238

rack travel mm : 12.10

Rated speed rpm : 1308

Tolerance 1/min : ± 4

rack travel mm : 4.00

Rated speed rpm : 1239

rack travel mm : 12.10
Rated speed rpm : 1309
Tolerance 1/min : + 4
rack travel mm : 4.00

LOW IDLE

control lever
position degree : 36.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 750
rack travel mm : 4.70
Tolerance mm : + 0.25

rack travel mm : 2.00
Rated speed rpm : 785
Tolerance 1/min : + 25

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1180
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.15
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500

rack travel mm : 2.25
Tolerance mm : + 0.15
Pressure hPa : 350
rack travel mm : 1.10
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 497

Injection pump
Pump designation : PES6P120A120RS3344
EP type number : 9 400 087 090

Governor
Governor design. : RQV350...1100PA1207
Governor no. : 9 420 080 379

Cust. part No. : 3355976

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 290
Power KW : 214.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 207.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.80

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 650

guide sleeve

travel mm : 5.55

Tolerance mm : +- 0.25

Rated speed rpm : 1150

guide sleeve

travel mm : 8.40

Tolerance mm : +- 0.10

Rated speed rpm : 350

guide sleeve

travel mm : 1.55

Tolerance mm : +- 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 4.05

Tolerance mm : +- 0.25

Rated speed rpm : 1400

guide sleeve

travel mm : 10.55

Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 16.50

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1300

Del. quantity
cm³/1000 strokes : 207.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 63.0

tolerance degree : +- 4.0

control lever

position degree : 118.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.50

Rated speed rpm : 1150

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1360

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 14.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 15.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Rated speed rpm : 720
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Rated speed rpm : 960
rack travel mm : 15.55
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 15.95
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.65
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 217.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : ~~3~~ 400 087 471

Injection pump
Pump designation : PE6P120A320RS3178
EP type number : 0 411 826 752

Governor
Governor design. : RQV25U...950PA921-3
Governor no. : 0 421 813 786

Cust. part No. : 8125313-P02

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 122 F
Power kW : 261.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 985
guide sleeve
travel mm : 8.20
Tolerance mm : ± 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.90
Tolerance mm : ± 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 6.50
Tolerance mm : ± 0.20

Rated speed rpm : 1060
guide sleeve
travel mm : 9.60
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1030

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : ± 4.0

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 985
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 64.0
tolerance degree : ± 4.0

control lever
position degree : 9.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : ± 0.10

Rated speed rpm : 100
CkT mm min. : > 6.20
Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.05
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 2.50
Tolerance mm : ± 0.10

Pressure hPa : 120
rack travel mm : 0.35
Tolerance mm : ± 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 499

Injection pump
Pump designation : PE6P110A720RS3289-1
EP type number : 0 411 816 795

Governor
Governor design. : RSV350...900P1A600
Governor no. : 9 420 082 331

Cust. part No. : 1371920

Customer-spec. information
Customer : SCANIA
Motor : DS1193A
Power KW : 211.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 168.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed _____
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 15.5

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 168.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 41.0
tolerance degree : ± 4.0

control lever
position degree : 91.0
tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 900
rack travel mm : 11.30

Rated speed rpm : 929
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1000

Rated speed rpm : 901
rack travel mm : 11.30

Rated speed rpm : 930
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1000

Rated speed rpm : 902
rack travel mm : 11.30

Rated speed rpm : 931
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1000

Rated speed rpm : 903
rack travel mm : 11.30

Rated speed rpm : 932

Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1000

Rated speed rpm : 904
rack travel mm : 11.30

Rated speed rpm : 933
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1000

Rated speed rpm : 905
rack travel mm : 11.30

Rated speed rpm : 934
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1000

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

control lever
position degree : 18.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.95
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Pressure hPa : 140
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : F 000 409 000

Injection pump
Pump designation : PES5P120A720LS7420
EP type number : F 000 400 200

Governor
Governor design. : RQV300...1100PA1293
Governor no. : F 000 420 100

Cust. part No. : 0270747702

Customer-spec. information
Customer : MBB
Motor : OM449h LA
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 252.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.40

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 17.0

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance

cm³/1000S. : ± 6.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100

guide sleeve

travel mm : 6.80

Tolerance mm : ± 0.10

Rated speed rpm : 300

guide sleeve

travel mm : 1.15

Tolerance mm : ± 0.25

Rated speed rpm : 700

guide sleeve

travel mm : 3.65

Tolerance mm : ± 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 2.75

Tolerance mm : ± 0.25

Rated speed rpm : 1300

guide sleeve

travel mm : 9.25

Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1250

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 252.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 52.0

tolerance degree : ± 4.0

control lever

position degree : 117.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1145

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1265

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1360

LOW IDLE

control lever

position degree : 83.0

tolerance degree : ± 4.0

control lever

position degree : 17.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 8.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 13.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 400
rack travel mm : 0.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1030
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 246.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : F 000 409 001

Injection pump
Pump designation : PESSP120A720LS7420
EP type number : F 000 400 200

Governor
Governor design. : RQV300...1100PA1294
Governor no. : F 000 420 101

Cust. part No. : 0270747602

Customer-spec. information
Customer : MBB
Motor : OM449h LA
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 225.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300
Rack travel in mm : 5.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 8.20
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 2.05
Tolerance mm : + 0.25

Rated speed rpm : 700
guide sleeve
travel mm : 5.35
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 4.50
Tolerance mm : + 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 10.25
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1250

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 225.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : + 4.0

control lever
position degree : 117.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1160
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

control lever
position degree : 18.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 10.00

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 570
rack travel mm : 1.30
Tolerance mm : \pm 0.10

Pressure hPa : 430
rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 202.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : F 000 409 100

Injection pump
Pump designation : PES5P120A720LS7420
EP type number : F 000 400 200

Governor
Governor design. : RQV300...1100PA1302
Governor no. : F 000 420 104

Cust. part No. : 0270748902

Customer-spec. information
Customer : MBB
Motor : OM449h LA
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300
Rack travel in mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 8.20
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 2.05
Tolerance mm : \pm 0.25

Rated speed rpm : 700
guide sleeve
travel mm : 5.35
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 10.25
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1250

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 252.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.60
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

control lever
position degree : 17.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 10.00
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 13.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 400
rack travel mm : 0.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

K04

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 246.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : F 000 409 101

Injection pump
Pump designation : PES5P120A720LS7420
EP type number : F 000 400 200

Governor
Governor design. : RGV30C...1100PA1303
Governor no. : F 000 420 105

Cust. part No. : 0270748802

Customer-spec. information
Customer : MBB
Motor : OM449h LA
Power kW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 225.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 6.80
Tolerance mm : +- 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.15
Tolerance mm : +- 0.25

Rated speed rpm : 700
guide sleeve
travel mm : 3.65
Tolerance mm : +- 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.75
Tolerance mm : +- 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 9.25
Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1250

K07

Rack travel in mm : 16.50
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 225.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : +- 4.0

control lever
position degree : 117.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1160
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 83.0
tolerance degree : +- 4.0

control lever
position degree : 18.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 8.00

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 570
rack travel mm : 1.30
Tolerance mm : \pm 0.10

Pressure hPa : 430
rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

K08

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 202.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.02.97

Test oil : ISO 4113

Combination No. : 0 400 864 109

Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995

Governor
Governor design. : RSV325...1250A5C917L
Governor no. : 0 420 232 639

Cust. part No. : 0423 2332 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F4L912/913
Power KW : 59.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

| | | |
|--|---|-----|
| Check tolerance cm ³ /1000S. | : | 8.0 |
|--|---|-----|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 325 |
|-----------------|---|-----|

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 8.50 |
| Tolerance mm | : | ± 0.10 |

| | | |
|--|---|------|
| Del. quantity cm ³ /1000 strokes | : | 11.5 |
|--|---|------|

| | | |
|--|---|-------|
| Tolerance cm ³ /1000 strokes | : | ± 2.0 |
|--|---|-------|

| | | |
|--|---|-------|
| Check tolerance cm ³ /1000S. | : | ± 4.5 |
|--|---|-------|

| | | |
|---------------------|---|-----|
| Spread Tolerance | : | 5.5 |
|---------------------|---|-----|

| | | |
|--|---|-----|
| cm ³ /1000 strokes | : | 5.5 |
| Check tolerance cm ³ /1000S. | : | 9.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|------|
| control lever position degree | : | FREE |
| Rated speed rpm | : | 800 |

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 0.50 |
| Tolerance mm | : | ± 0.20 |

| | | |
|---|---|------|
| governor spring pre-tension click setting x | : | 3.00 |
|---|---|------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-------------------------|---|------|
| Rated speed rpm | : | 1250 |
| Aneroid pressure hPa | : | - |

| | | |
|--|---|------|
| Del. quantity cm ³ /1000 strokes | : | 76.0 |
|--|---|------|

| | | |
|--|---|-------|
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
|--|---|-------|

| | | |
|--|---|-------|
| Check tolerance cm ³ /1000S. | : | ± 3.0 |
|--|---|-------|

| | | |
|---------------------|---|-----|
| Spread Tolerance | : | 3.5 |
|---------------------|---|-----|

| | | |
|--|---|-----|
| cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 8.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 102.0 |
| tolerance degree | : | ± 4.0 |

| | | |
|-------------------------------|---|-------|
| RATED SPEED rack travel mm | : | 10.35 |
|-------------------------------|---|-------|

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1295 |
| Tolerance 1/min | : | ± 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1340 |

| | | |
|-----------------|---|------|
| Tolerance 1/min | : | ± 15 |
|-----------------|---|------|

| | | |
|----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1510 |
|-----------------|---|------|

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1360 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 69.0 |
| tolerance degree | : | ± 4.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 8.00 |

| | | |
|--------------|---|--------|
| Tolerance mm | : | ± 0.10 |
|--------------|---|--------|

Testing:

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 325 |
| rack travel mm | : | 8.50 |

| | | |
|--------------|---|--------|
| Tolerance mm | : | ± 0.10 |
|--------------|---|--------|

| | | |
|-----------------|---|------|
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 475 |

| | | |
|-----------------|---|------|
| Tolerance 1/min | : | ± 30 |
|-----------------|---|------|

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

| | | |
|-------------|---|---------|
| CRT mm min. | : | > 19.50 |
|-------------|---|---------|

TORQUE CONTROL

| | | |
|-----------------|---|-------|
| Rated speed rpm | : | 1250 |
| rack travel mm | : | 11.35 |

| | | |
|--------------|---|--------|
| Tolerance mm | : | ± 0.05 |
|--------------|---|--------|

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.01.97

Test oil : ISO 4113

Combination No. : 0 400 846 449

Injection pump
Pump designation : PES6A95D420LS2595
EP type number : 0 410 896 930

Governor
Governor design. : RQ200/1050AB1094
Governor no. : 0 420 201 623

Cust. part No. :

Customer-spec. information
Customer : RABA
Motor : D2156 HM6U
Power kW : 141.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 103.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 6.0 |

| | |
|-------------------------------|----------|
| Rated speed rpm | : 200 |
| Rack travel in mm | : 6.00 |
| Tolerance mm | : ± 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 13.0 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.5 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : 109 |
| Rated speed rpm | : 300 |
| Rack travel in mm | : 20.00 |
| Tolerance mm | : ± 0.80 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1050 |
| Aneroid pressure | |
| hPa | : - |
| Del. quantity | |
| cm ³ /1000 strokes | : 103.0 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 3.0 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 6.0 |

RATED SPEED

| | |
|-----------------|----------|
| rack travel mm | : 9.60 |
| Rated speed rpm | : 1103 |
| Tolerance 1/min | : ± 8 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1140 |
| Tolerance 1/min | : ± 15 |
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 1225 |

LOW IDLE

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 200 |
| rack travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |
| rack travel mm | : 2.00 |
| Rated speed rpm | : 290 |
| Tolerance 1/min | : ± 20 |
| Rated speed rpm | : 100 |
| CRT mm min. | : > 7.50 |
| Rated speed rpm | : 350 |
| CRT mm max. | : < 1.00 |

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 1050 |
| rack travel mm | : 10.65 |
| Tolerance mm | : ± 0.05 |
| Rated speed rpm | : 500 |
| rack travel mm | : 11.20 |
| Tolerance mm | : ± 0.10 |
| Rated speed rpm | : 740 |
| rack travel mm | : 11.20 |
| Tolerance mm | : ± 0.10 |
| Rated speed rpm | : 800 |
| rack travel mm | : 11.00 |
| Tolerance mm | : ± 0.10 |

Start interlock

| | |
|-----------------|---------|
| Rated speed rpm | : > 100 |
| Rated speed rpm | : < 140 |

Check
speed 1/min : > 80
Check
speed 1/min : < 160

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 91.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000s. : ± 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.80
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000s. : ± 8.0

LOW IDLE

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 614

Injection pump
Pump designation : PES6P120A320RS7419
EP type number : 0 412 726 961

Governor
Governor design. : RQV300...1300PA1288K
Governor no. : 0 421 815 519

Cust. part No. : 386 6799

Customer-spec. information
Customer : CDC
Motor : 6CTA
Power KW : 320.4

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.50
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 12.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rated speed rpm : 300

Rack travel in mm : 6.20
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1372
 guide sleeve
 travel mm : 9.96
 Tolerance mm : \pm 0.15

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : \pm 0.20

Rated speed rpm : 917
 guide sleeve
 travel mm : 6.76
 Tolerance mm : \pm 0.25

Rated speed rpm : 590
 guide sleeve
 travel mm : 4.95
 Tolerance mm : \pm 0.25

Rated speed rpm : 1710
 guide sleeve
 travel mm : 13.50
 Tolerance mm : \pm 0.50

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.00
 Rated speed rpm : 1365
 Tolerance 1/min : \pm 5
 rack travel mm : 4.00

Rated speed rpm : 1520
 Tolerance 1/min : \pm 15
 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 71.0
 tolerance degree : \pm 4.0

Control lever difference
 Grad : 49.0
 tolerance degree : \pm 6.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.20

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1300

Rated speed rpm : 900
 rack travel mm : 13.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 600
 rack travel mm : 13.05
 Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
 Pressure hPa : 1500

Pressure hPa : -
 Rated speed rpm : 1000
 rack travel mm : 9.85
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1300
Pressure hPa : 890
rack travel mm : 12.80
Tolerance mm : \pm 0.20
Pressure hPa : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.20
Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 6.0
Check tolerance
cm³/1000S. : \pm 8.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.10
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

K18

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.97
Test oil : ISO 4113
Combination No. : 0 402 776 834
Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943
Governor
Governor design. : RSV400...750P4A610
Governor no. : 0 421 833 520

Cust. part No. : RE66451

Customer-spec. information

Customer : DEERE
Motor : 6081 HFO01
Power kW : 175.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 079
Inlet press. bar : 2.0
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference °CS : 2.50

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 755

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 790

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 950

rack travel mm : 4.00

Rated speed rpm : 820

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.00

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Check
speed 1/min : $>$ 80

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.97
Test oil : ISO 4113

Combination No. : 0 402 776 835

Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943

Governor
Governor design. : RSV400...750P4A607
Governor no. : 0 421 833 521

Cust. part No. : RE66458

Customer-spec. information

Customer : DEERE
Motor : 6081 HF001
Power KW : 175.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 251.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 755

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 790

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 950

rack travel mm : 4.00

Rated speed rpm : 820

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.00

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Check
speed 1/min : $>$ 80

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.97
Test oil : ISO 4113

Combination No. : F 002 A02 013

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1000A0C890R
Governor no. : F 002 A20 213

Cust. part No. : 3930163

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 116.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.95

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.6

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 116.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.70
Rated speed rpm : 1045
Tolerance 1/min : + 5

rack travel mm : 6.70
Rated speed rpm : 1120
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

rack travel mm : 6.70
Rated speed rpm : 1120

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Control lever difference
Grad : 20.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.45
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.95

Tolerance mm : \pm 0.10
Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.70
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 13.20
Tolerance mm : \pm 0.20

Pressure hPa : 370
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 20.6
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 770A

Injection pump
Pump designation : PES6P110A320LS3318
EP type number : 0 412 016 749

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91A

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 243.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 216.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 350

Rack travel in mm : 4.90
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 14.5

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : ~ 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 216.5

L01

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 47.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50
Rated speed rpm : 910
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 950
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1025

rack travel mm : 4.00
Rated speed rpm : 955

LOW IDLE

control lever
position degree : 26.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.90
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.55
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 770B

Injection pump
Pump designation : PES6P110A320LS3318
EP type number :

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91B

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 200.0

L04

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 750
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 800
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 805

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 11.65
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 770C

Injection pump
Pump designation : PES6P110A320LS3318
EP type number :

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91C

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 227.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 213.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 213.5

L07

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.40
Rated speed rpm : 910
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 950

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1025

rack travel mm : 4.00
Rated speed rpm : 955

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.45
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 770D

Injection pump
Pump designation : PES6P110A320LS3318
EP type number :

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91D

Customer spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 160.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 11.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 187.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 340

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 187.0

L10

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 750
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 800
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 805

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 11.15
Tolerance mm : ± 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.09.96

Test oil : ISO 4113

Combination No. : 0 402 076 770E

Injection pump

Pump designation : PES6P110A320LS3318

EP type number :

Governor

Governor design. : RS/350...75GP4A561

Governor no. :

Cust. part No. : 1823837C91E

Customer-spec. information

Customer : NAVISTAR

Motor : DT-531

Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 10.75

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 176.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 176.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 750
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 800
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 805

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 10.75
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 770F

Injection pump
Pump designation : PES6P110A320LS3318
EP type number :

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91F

Customer spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 222.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(3) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 222.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 910
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 950
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1025

rack travel mm : 4.00
Rated speed rpm : 955

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.45
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spread
tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 7706

Injection pump
Pump designation : PES6P110A320LS3318
EP type number :

Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C916

Customer-spec. information
Customer : NAVISAR
Motor : DT-531
Power KW : 130.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 9.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 158.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 340

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 158.0

L19

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 97.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 750

Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 800

Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 805

LOW IDLE

control lever
position degree : 76.0

Testing:

Rated speed rpm : 340
rack travel mm : 5.20

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 9.95

Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113
Combination No. : 0 402 076 770H
Injection pump
Pump designation : PES6P110A320LS3318
EP type number :
Governor
Governor design. : RSV350...750P4A561
Governor no. :

Cust. part No. : 1823837C91H

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 9.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 138.5

| | |
|--|---------|
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

| | |
|--|----------|
| Rated speed rpm | : 340 |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 35.0 |
| Tolerance cm ³ /1000 strokes | : + 2.0 |
| Check tolerance cm ³ /1000S. | : + 4.5 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| governor spring pre-tension click setting x | : 4.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 900 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 138.5 |

| | |
|--|---------|
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.5 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 97.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|--------|
| rack travel mm | : 8.90 |
| Rated speed rpm | : 920 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 950 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1025 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 955 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 76.0 |
| tolerance degree | : + 4.0 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 340 |
| rack travel mm | : 5.20 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 900 |
| rack travel mm | : 9.95 |
| Tolerance mm | : + 0.05 |

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113
Combination No. : 0 402 076 770J
Injection pump
Pump designation : PES6P110A320LS3318
EP type number :
Governor
Governor design. : RSV350...750P4A561
Governor no. :
Cust. part No. : 1823837C91J

Customer-spec. information:
Customer : NAVISTAR
Motor : DT-531
Power KW : 231.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

L24

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.0J
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.5J
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 650
Rack travel in mm : 12.65
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 228.5

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : + 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 3.0 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 6.5 |

Rated speed rpm : 340

Rack travel in mm : 5.20
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 228.5

L25

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : + 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 3.0 |
| Spread | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 6.5 |

CONTROL LEVER

control lever
 position degree : 97.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20
 Rated speed rpm : 750
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 800
 Tolerance 1/min : + 5

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 900

rack travel mm : 4.00
 Rated speed rpm : 805

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 340
 rack travel mm : 5.20
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650
 rack travel mm : 12.65
 Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 815

Injection pump
Pump designation : PES6P120A320LS3387
EP type number : 0 412 026 804

Governor
Governor design. : RSV350...750P4A561
Governor no. : 0 421 833 593

Cust. part No. : 1829851C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-531
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

L27

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 249.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 350

Rack travel in mm : 5.50

Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 38.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 249.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.50
Rated speed rpm : 760
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 810
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 900

rack travel mm : 4.00
Rated speed rpm : 810

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.50
Tolerance mm : + 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.06.96
Test oil : ISO 4113

Combination No. : 0 402 736 843

Injection pump
Pump designation : PES6P12GA12CIRS7281
EP type number : 0 412 726 890

Governor
Governor design. : RQV400...1250PA1060K
Governor no. : 0 421 815 343

Cust. part No. : 3925086

Customer-spec. information
Customer : CDC
Motor : 68TA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1328
guide sleeve

travel mm : 7.62
Tolerance mm : ± 0.15

Rated speed rpm : 400

guide sleeve
travel mm : 1.44

Tolerance mm : ± 0.20

Rated speed rpm : 685

guide sleeve
travel mm : 3.50

Tolerance mm : ± 0.25

Rated speed rpm : 490

guide sleeve
travel mm : 2.50

Tolerance mm : ± 0.25

Rated speed rpm : 1710

guide sleeve

travel mm : 11.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 117.0

tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1325

Tolerance 1/min : ± 15

rack travel mm : 4.00

Rated speed rpm : 1480

Tolerance 1/min : ± 5

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1550

LOW IDLE

control lever

position degree : 72.0

tolerance degree : ± 6.0

Control Lever difference

Grad : 45.0

tolerance degree : ± 6.0

Testing:

Rated speed rpm : 420
rack travel mm : 6.00
Tolerance mm : \pm 0.20

Rated speed rpm : 300

CRT mm min. : $>$ 7.70

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 375
rack travel mm : 12.80
Tolerance mm : \pm 0.30

Pressure hPa : 260
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 280

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 107.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.05.96
Test oil : ISO 4113
Combination No. : 0 402 736 844
Injection pump
Pump designation : PES6P120A12URS7287
EP type number : 0 412 726 896

Governor
Governor design. : RQV400...1250PA964
: 1K
Governor no. : 0 421 815 354

Cust. part No. : 3921925

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 171.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.85
Tolerance mm : ± 0.05

| | |
|---------------------------------|-------|
| <hr/> | |
| Del. quantity | |
| cm ³ /1000 strokes : | 194.5 |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes : | ± 1.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. : | ± 4.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes : | 8.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. : | 12.0 |
| <hr/> | |

| | |
|---------------------------------|--------|
| Rated speed rpm : | 420 |
| | |
| Rack travel in mm : | 5.90 |
| Tolerance mm : | ± 0.20 |
| Del. quantity | |
| cm ³ /1000 strokes : | 16.5 |
| Tolerance | |
| cm ³ /1000 strokes : | ± 3.0 |
| Check tolerance | |
| cm ³ /1000S. : | ± 5.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes : | 4.0 |
| Check tolerance | |
| cm ³ /1000S. : | 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| control lever | |
| position degree : | MAX |
| Rated speed rpm : | 1475 |
| | |
| Rack travel in mm : | 10.50 |
| Tolerance mm : | ± 1.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|---------------------------------|-------|
| Rated speed rpm : | 1150 |
| Aneroid pressure | |
| hPa : | 1200 |
| Del. quantity | |
| cm ³ /1000 strokes : | 194.5 |

M07

| | |
|---------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes : | ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. : | ± 4.0 |
| Spreed | |
| Tolerance | |
| cm ³ /1000 strokes : | 8.0 |
| Check tolerance | |
| cm ³ /1000S. : | 12.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 120.0 |
| tolerance degree : | ± 6.0 |

RATED SPEED

| | |
|-------------------|-------|
| rack travel mm : | 13.40 |
| Rated speed rpm : | 1315 |
| Tolerance 1/min : | ± 15 |

| | |
|-------------------|------|
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1485 |
| Tolerance 1/min : | ± 5 |

| | |
|-------------------|--------|
| rack travel mm : | 0.50 |
| Tolerance mm : | ± 0.50 |
| Rated speed rpm : | 1550 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 73.0 |
| tolerance degree : | ± 6.0 |

| | |
|--------------------------|-------|
| Control lever difference | |
| Grad : | 47.0 |
| tolerance degree : | ± 4.0 |

Testing:

| | |
|-------------------|--------|
| Rated speed rpm : | 420 |
| rack travel mm : | 5.90 |
| Tolerance mm : | ± 0.20 |

| | |
|-------------------|-----|
| Rated speed rpm : | 300 |
|-------------------|-----|

| | |
|---------------|--------|
| CRT mm min. : | > 9.00 |
|---------------|--------|

| | |
|-------------------|-----|
| Rated speed rpm : | 425 |
|-------------------|-----|

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 14.85
 Tolerance mm : \pm 0.05

Rated speed rpm : 800
 rack travel mm : 14.00
 Tolerance mm : \pm 0.20

Rated speed rpm : 1250
 rack travel mm : 14.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 900
 rack travel mm : 14.20
 Tolerance mm : \pm 0.20

Rated speed rpm : 600
 rack travel mm : 13.40
 Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
 Pressure hPa : 1200

Pressure hPa : -
 Rated speed rpm : 1150
 rack travel mm : 10.00
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 645
 rack travel mm : 12.80
 Tolerance mm : \pm 0.30

Pressure hPa : 355
 rack travel mm : 10.80
 Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
 Rated speed rpm : $<$ 315

Check
 speed 1/min : $>$ 80
 Check
 speed 1/min : $<$ 325

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 182.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 12.50
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 155.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420
 Del. quantity
 cm³/1000 strokes : 16.5
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.05.96
Test oil : ISO 4113

Combination No. : 0 402 736 870

Injection pump
Pump designation : PES6P120A120RS7352
EP type number : 0 412 726 923

Governor
Governor design. : RQV350...900PA1175K
Governor no. : 0 421 815 441

Cust. part No. : 3928156

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

M10

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 7.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : VH
Rated speed rpm : 1150

Rack travel in mm : 13.90

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 13.90
Rated speed rpm : 1075
Tolerance 1/min : ± 15

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : ± 5

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 69.0
tolerance degree : ± 6.0

Control lever difference

Grad : 50.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 8.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 15.25

Tolerance mm : \pm 0.05
Rated speed rpm : 650
rack travel mm : 14.25
Tolerance mm : \pm 0.20

Rated speed rpm : 1000
rack travel mm : 15.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 900
rack travel mm : 9.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 825
rack travel mm : 13.80
Tolerance mm : \pm 0.20

Pressure hPa : 370
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 226.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.40
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.05.96
Test oil : ISO 4113

Combination No. : 0 402 736 873

Injection pump
Pump designation : PES6P120A120RS7353
EP type number : 0 412 726 924

Governor
Governor design. : RQV350...1150PA1188K
Governor no. : 0 421 815 449

Cust. part No. : 3928671

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 137.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 187.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1210
Tolerance 1/min : ± 15

rack travel mm : 4.00
Rated speed rpm : 1350
Tolerance 1/min : ± 5

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1425

LOW IDLE

control lever
position degree : 69.0
tolerance degree : ± 6.0

Control lever difference

Grad : 45.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.20

Rated speed rpm : 275

CRT mm min. : > 7.90

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.85
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 11.80
Tolerance mm : ± 0.20

Rated speed rpm : 1150
rack travel mm : 12.80

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 8.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 520
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Pressure hPa : 255
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 169.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100

M15

Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 10.02.97
Test oil : ISO 4113

Combination No. : 0 402 746 615

Injection pump
Pump designation : PES6P120A320RS7419
EP type number : 0 412 726 961

Governor
Governor design. : RQV300...1250PA1289K
Governor no. : 0 421 815 520

Cust. part No. : 386 6800

Customer spec. information
Customer : CDC
Motor : 6CTA
Power KW : 249.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 12.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1372
guide sleeve

travel mm : 9.86
Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.29

Tolerance mm : ± 0.20

Rated speed rpm : 917

guide sleeve
travel mm : 6.76

Tolerance mm : ± 0.25

Rated speed rpm : 590

guide sleeve
travel mm : 4.95

Tolerance mm : ± 0.25

Rated speed rpm : 1710

guide sleeve
travel mm : 13.50

Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
nPa : 1200

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 117.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.10

Rated speed rpm : 1320

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1460

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1575

LOW IDLE

control lever

position degree : 75.0
tolerance degree : ± 4.0

Control lever difference

Grad : 42.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.20

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 1100
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : 9.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250
Pressure hPa : 560
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 10.70
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 195.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.90
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 176.5
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 746 642

Injection pump
Pump designation : PES6P120A720RS7321
EP type number : 0 412 726 906

Governor
Governor design. : RQV325...900PA944
: K
Governor no. : 0 421 815 455

Cust. part No. : 313GC5212-P16

Customer spec. information
Customer : MACK
Motor : E7-350
Power KW : 261.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 319.5

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |

| | |
|-------------------------|---------|
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |

| | |
|-------|--|
| Speed | |
|-------|--|

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |

| | |
|-------------------------|-------|
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

| | |
|-----------------|-------|
| Rated speed rpm | : 340 |
|-----------------|-------|

| | |
|-------------------|--------|
| Rack travel in mm | : 4.80 |
|-------------------|--------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.10 |
|--------------|----------|

| | |
|-------------------------------|--------|
| Del. quantity | |
| cm ³ /1000 strokes | : 31.5 |

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : ± 3.0 |

| | |
|-------------------------|---------|
| Check tolerance | |
| cm ³ /1000S. | : ± 5.0 |

| | |
|-------|--|
| Speed | |
|-------|--|

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 8.0 |

| | |
|-------------------------|--------|
| Check tolerance | |
| cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|-------|
| Rated speed rpm | : 900 |
|-----------------|-------|

| | |
|------------------|--------|
| Aneroid pressure | |
| hPa | : 1200 |

| | |
|-------------------------------|---------|
| Del. quantity | |
| cm ³ /1000 strokes | : 319.5 |

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |

| | |
|-------------------------|---------|
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |

| | |
|-------|--|
| Speed | |
|-------|--|

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 5.0 |

| | |
|-------------------------|-------|
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 117.0 |
| tolerance degree | : ± 6.0 |

RATED SPEED

| | |
|----------------|---------|
| rack travel mm | : 13.10 |
|----------------|---------|

| | |
|-----------------|-------|
| Rated speed rpm | : 945 |
|-----------------|-------|

| | |
|-----------------|-------|
| Tolerance 1/min | : ± 5 |
|-----------------|-------|

| | |
|-------------|--------|
| Check | |
| speed 1/min | : ± 10 |

| | |
|----------------|--------|
| rack travel mm | : 4.00 |
|----------------|--------|

| | |
|-----------------|--------|
| Rated speed rpm | : 1100 |
|-----------------|--------|

| | |
|-----------------|--------|
| Tolerance 1/min | : ± 15 |
|-----------------|--------|

| | |
|-------------|--------|
| Check | |
| speed 1/min | : ± 20 |

| | |
|----------------|--------|
| rack travel mm | : 0.50 |
|----------------|--------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.50 |
|--------------|----------|

| | |
|-----------------|--------|
| Rated speed rpm | : 1200 |
|-----------------|--------|

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 66.0 |
| tolerance degree | : ± 6.0 |

Testing:

| | |
|-----------------|-------|
| Rated speed rpm | : 340 |
|-----------------|-------|

| | |
|----------------|--------|
| rack travel mm | : 4.80 |
|----------------|--------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.10 |
|--------------|----------|

| | |
|-----------------|-------|
| Rated speed rpm | : 275 |
|-----------------|-------|

| | |
|-------------|----------|
| CRT mm min. | : > 6.10 |
|-------------|----------|

| | |
|-----------------|-------|
| Rated speed rpm | : 425 |
|-----------------|-------|

TORQUE CONTROL

| | |
|-----------------|-------|
| Rated speed rpm | : 900 |
|-----------------|-------|

| | |
|----------------|---------|
| rack travel mm | : 14.15 |
|----------------|---------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.05 |
|--------------|----------|

| | |
|-----------------|-------|
| Rated speed rpm | : 625 |
|-----------------|-------|

| | |
|----------------|---------|
| rack travel mm | : 13.55 |
|----------------|---------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.10 |
|--------------|----------|

| | |
|-----------------|-------|
| Rated speed rpm | : 500 |
|-----------------|-------|

| | |
|----------------|---------|
| rack travel mm | : 12.80 |
|----------------|---------|

| | |
|--------------|----------|
| Tolerance mm | : ± 0.40 |
|--------------|----------|

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 900
rack travel mm : 8.60
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 810
rack travel mm : 13.00
Tolerance mm : +- 0.20

Pressure hPa : 420
rack travel mm : 10.15
Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 625
Del. quantity
cm³/1000 strokes : 339.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 400

Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 30.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 746 976

Injection pump
Pump designation : PES6P120A72ORS7323
EP type number : 0 412 726 907

Governor
Governor design. : RQV325...875PA909
Governor no. : 0 421 815 398

Cust. part No. : 313GC5213-P6

Customer-spec. information

Customer : MACK
Motor : EMN7300
Power KW : 223.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 875

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 213.0

| | |
|-------------------|----------|
| Tolerance | |
| cm3/1000 strokes | : + 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : + 4.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance | |
| cm3/1000 strokes | : 5.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. | : 9.0 |
| <hr/> | |
| | |
| Rated speed rpm | : 325 |
| | |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity | |
| cm3/1000 strokes | : 44.0 |
| Tolerance | |
| cm3/1000 strokes | : + 3.0 |
| Check tolerance | |
| cm3/1000S. | : + 5.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 8.0 |
| Check tolerance | |
| cm3/1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|---------|
| Rated speed rpm | : 875 |
| Aneroid pressure | |
| hPa | : 1200 |
| Del. quantity | |
| cm3/1000 strokes | : 213.0 |
| Tolerance | |
| cm3/1000 strokes | : + 1.0 |
| Check tolerance | |
| cm3/1000S. | : + 4.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 5.0 |
| Check tolerance | |
| cm3/1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 113.0 |
| tolerance degree | : + 6.0 |

| | |
|-----------------|----------|
| RATED SPEED | |
| rack travel mm | : 11.85 |
| Rated speed rpm | : 920 |
| Tolerance 1/min | : + 5 |
| Check | |
| speed 1/min | : + 10 |
| | |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1090 |
| Tolerance 1/min | : + 15 |
| Check | |
| speed 1/min | : + 20 |
| | |
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1200 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 65.0 |
| tolerance degree | : + 6.0 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 325 |
| rack travel mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| | |
| Rated speed rpm | : 275 |
| | |
| CRT mm min. | : > 6.50 |
| | |
| Rated speed rpm | : 425 |

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 875 |
| rack travel mm | : 12.85 |
| Tolerance mm | : + 0.05 |
| | |
| Rated speed rpm | : 510 |
| rack travel mm | : 14.15 |
| Tolerance mm | : + 0.10 |
| | |
| Rated speed rpm | : 400 |
| rack travel mm | : 13.50 |
| Tolerance mm | : + 0.20 |

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 510
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 510
rack travel mm : 8.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 510

Pressure hPa : 785
rack travel mm : 13.10
Tolerance mm : \pm 0.20

Pressure hPa : 370
rack travel mm : 9.90
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 275

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 510
Del. quantity
cm³/1000 strokes : 295.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 400

Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.30
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 746 980

Injection pump
Pump designation : PES6P120A320LS7328
EP type number : 0 412 726 908

Governor
Governor design. : RQV350...1250PA1136K
Governor no. : 0 421 815 402

Cust. part No. : 1823108C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-408
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 6.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1440

Rack travel in mm : 12.30
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : + 4.0

control lever
position degree : 119.0
tolerance degree : + 6.0

RATED SPEED
rack travel mm : 12.30
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : 4.00
Rated speed rpm : 1460
Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 6.0

control lever
position degree : 16.5
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 6.70
Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1150

| | | |
|-----------------|---|--------|
| rack travel mm | : | 13.25 |
| Tolerance mm | : | ± 0.05 |
| Rated speed rpm | : | 850 |
| rack travel mm | : | 12.50 |
| Tolerance mm | : | ± 0.10 |
| Rated speed rpm | : | 1250 |
| rack travel mm | : | 13.35 |
| Tolerance mm | : | ± 0.10 |
| Rated speed rpm | : | 650 |
| rack travel mm | : | 11.90 |
| Tolerance mm | : | ± 0.20 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1250 |
| Pressure hPa | : | 1500 |
| Pressure hPa | : | - |
| Rated speed rpm | : | 1250 |
| rack travel mm | : | 9.80 |
| Tolerance mm | : | ± 0.20 |

MEASUREMENT

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1250 |
| Pressure hPa | : | 970 |
| rack travel mm | : | 12.50 |
| Tolerance mm | : | ± 0.20 |
| Pressure hPa | : | 435 |
| rack travel mm | : | 11.00 |
| Tolerance mm | : | ± 0.05 |

Start interlock

| | | |
|-------------------|---|-------|
| Rated speed rpm | : | > 100 |
| Rated speed rpm | : | < 280 |
| Check speed 1/min | : | > 80 |
| Check speed 1/min | : | < 290 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|---|---|-------|
| Aneroid pressure hPa | : | 1500 |
| Rated speed rpm | : | 850 |
| Del. quantity cm ³ /1000 strokes | : | 167.5 |

| | | |
|---|---|-------|
| Tolerance cm ³ /1000 strokes | : | ± 3.0 |
| Check tolerance cm ³ /1000s. | : | ± 6.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 8.0 |
| Check tolerance cm ³ /1000s. | : | 12.0 |

| | | |
|---|---|-------|
| Aneroid pressure hPa | : | - |
| Rated speed rpm | : | 1250 |
| Del. quantity cm ³ /1000 strokes | : | 93.0 |
| Tolerance cm ³ /1000 strokes | : | ± 2.0 |
| Check tolerance cm ³ /1000s. | : | ± 4.0 |

STARTING FUEL DELIVERY

| | | |
|---|---|--------|
| Rated speed rpm | : | 100 |
| rack travel mm | : | 20.50 |
| Tolerance mm | : | ± 1.00 |
| Del. quantity cm ³ /1000 strokes | : | 130.0 |
| Tolerance cm ³ /1000 strokes | : | ± 20.0 |
| Check tolerance cm ³ /1000s. | : | ± 30.0 |

LOW IDLE

| | | |
|---|---|-------|
| Rated speed rpm | : | 325 |
| Del. quantity cm ³ /1000 strokes | : | 27.0 |
| Tolerance cm ³ /1000 strokes | : | ± 3.0 |
| Check tolerance cm ³ /1000s. | : | ± 5.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 5.0 |
| Check tolerance cm ³ /1000s. | : | 9.0 |

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.76
Test oil : ISO 4113
Combination No. : 0 402 746 982
Injection pump
Pump designation : PES6P120A320LS7322
EP type number : 0 412 726 904
Governor
Governor design. : RQV350...1000PA1135K
Governor no. : 0 421 815 404

Cust. part No. : 1823153C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-531
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

N01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 14.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 6.00
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1055
Tolerance 1/min : \pm 15

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 6.0

Testing:

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : \pm 0.20

Rated speed rpm : 275

CRT mm min. : > 7.00

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 14.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 650
rack travel mm : 13.30
Tolerance mm : \pm 0.20

Pressure hPa : 290
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 280

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 125.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 30.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 746 983

Injection pump
Pump designation : PES6P120A320LS7328
EP type number : 0 412 726 908

Governor
Governor design. : RQV350...1250PA1137K
Governor no. : 0 421 815 405

Cust. part No. : 1823107C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-408
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

N04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 158.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 335

Rack travel in mm : 6.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 24.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 158.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1290

Tolerance 1/min : + 15

rack travel mm : 4.00
Rated speed rpm : 1435

Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1525

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 6.0

Testing:

Rated speed rpm : 335
rack travel mm : 6.60

Tolerance mm : + 0.10

Rated speed rpm : 275

CRT mm min. : > 7.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.55

Tolerance mm : + 0.05

Rated speed rpm : 850
rack travel mm : 11.75

Tolerance mm : + 0.10

Rated speed rpm : 650
rack travel mm : 11.10

Tolerance mm : + 0.20

Rated speed rpm : 1225
rack travel mm : 12.70

Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1225
Pressure hPa : 1500

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 10.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1225

Pressure hPa : 850
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Pressure hPa : 420
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 280

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1150

Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 30.0

LOW IDLE

Rated speed rpm : 335
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 748 809

Injection pump
Pump designation : PES8P120A920/4LS7320
EP type number : 0 412 728 809

Governor
Governor design. : RQV325...950PA848
: K
Governor no. : 0 421 815 388

Cust. part No. : 313GC5214F2

Customer-spec. information
Customer : MACK
Motor : E9-500
Power KW : 373.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 8- 4
: - 6- 3

Phasing : 0-45-90-135-180
: -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 243.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rack travel in mm : 5.30
Tolerance mm : ± 0.20

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 10.00
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 243.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : ± 6.0

N08

RATED SPEED
rack travel mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 325
rack travel mm : 5.30
Tolerance mm : ± 0.20

Rated speed rpm : 275

CRT mm min. : > 6.80

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 15.15
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 14.40
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 13.70
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 1200

rack travel mm : 15.15
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 950
rack travel mm : 8.75
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 950
Pressure hPa : 535
rack travel mm : 12.85
Tolerance mm : \pm 0.20

Pressure hPa : 230
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 260

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 259.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 146.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 798 803

Injection pump
Pump designation : PES8P120A920/4LS7336
EP type number : 0 412 728 813

Governor
Governor design. : RE30
Governor no. : 0 421 890 034

Cust. part No. : 313 GC 5209

Customer-spec. information
Customer : MACK
Motor : E9-550
Power KW : 410.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

N10

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.20

Firing order : 1- 2- 7- 8- 4
 : - 6- 3

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 2.950
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 339.5
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 8.0
Speed
Tolerance
cm3/1000 strokes : 12.0
Check tolerance
cm3/1000S. : 16.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.340
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 20.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.10.96
Test oil : ISO 4113
Combination No. : 0 402 996 311
Injection pump
Pump designation : PES6P120A72ORS8512
EP type number : 0 412 926 214
Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 1/2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 3 413 359 008
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 4.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 12.00
Tolerance mm : ± 0.20
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Start of delivery blocking
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, U_{act} = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60

Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm3/1000 strokes : 310.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : - 5.0
Speed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : +/- 10.0
Check tolerance
cm3/1000S. : +/- 12.0
Speed
Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Rated speed rpm : 325
Uact V : 1.310
Uact V : 1.310
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 33.0
Del. quantity
cm3/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 3.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 14.0
Check tolerance
cm³/1000s. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : ± 19.0
Check tolerance
cm³/1000s. : ± 22.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000s. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 403 466 152

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MWOA368
Governor no. : 0 420 085 251

Cust. part No. : 3926378

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 143.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.15
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.25

N17

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 6.00
Rated speed rpm : 1230

rack travel mm : 1.00
Rated speed rpm : 1400

rack travel mm : 6.00
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 4.65
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.15
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Rated speed rpm : 950
rack travel mm : 11.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Pressure hPa : 545
rack travel mm : 10.60
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 117.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00

Del. quantity
cm³/1000 strokes : 177.0

Tolerance
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.97
Test oil : ISO 4113

Combination No. : 0 402 076 809

Injection pump
Pump designation : PES6P100B320RS3384
EP type number : 0 412 006 713

Governor
Governor design. : RSV400...1125POA644
Governor no. : 0 421 833 557

Cust. part No. : 51.11103-7564

Customer-spec. information
Customer : MAN
Motor : D0826 LE531
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.10
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 198.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.0 |

| | |
|--|----------|
| Rated speed rpm | : 400 |
| Rack travel in mm | : 4.90 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 25.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 6.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring pre-tension click setting x | : 5.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-----------------|-------|
| Rated speed rpm | : 925 |
|-----------------|-------|

| | |
|--|---------|
| Aneroid pressure hPa | : 1500 |
| Del. quantity cm ³ /1000 strokes | : 198.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 101.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 12.50 |
| Rated speed rpm | : 1155 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1245 |
| Tolerance 1/min | : ± 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1400 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1250 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 77.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.40 |
| Tolerance mm | : ± 0.10 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.90 |
| Tolerance mm | : ± 0.10 |

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 14.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10

Rated speed rpm : 1025
rack travel mm : 13.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : \pm 0.15

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 150
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Pressure hPa : 800
rack travel mm : 12.50
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

N22

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 187.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.01.97
Test oil : ISO 4113

Combination No. : 0 402 086 702

Injection pump
Pump designation : PES6P1008321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125P0A674
Governor no. : 0 421 833 592

Cust. part No. : 51.11103-7564

Customer-spec. information
Customer : MAN
Motor : D0826 LE531
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 203

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.10
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 198.0 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| <hr/> | |
| Spreed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 6.0 |
| <hr/> | |

| | |
|--|----------|
| Rated speed rpm | : 400 |
| Rack travel in mm | : 4.90 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 25.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 6.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 3.5 |
| Check tolerance cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|----------------------------------|--------|
| control lever position degree | : - 3 |
| governor spring pre-tension | |
| click setting x | : 5.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 925 |
| Aneroid pressure hPa | : 1500 |
| Del. quantity cm ³ /1000 strokes | : 198.0 |

N25

| | |
|--|---------|
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spreed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 100.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 12.60 |
| Rated speed rpm | : 1175 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1265 |
| Tolerance 1/min | : ± 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1400 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1265 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 76.0 |
| tolerance degree | : ± 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.40 |
| Tolerance mm | : ± 0.10 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 400 |
| rack travel mm | : 4.90 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|--------|
| rack travel mm | : 2.00 |
| Rated speed rpm | : 490 |
| Tolerance 1/min | : ± 30 |

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 14.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10

Rated speed rpm : 1025
rack travel mm : 13.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : \pm 0.15

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 150
rack travel mm : 9.85
Tolerance mm : \pm 0.05

Pressure hPa : 800
rack travel mm : 12.50
Tolerance mm : \pm 0.15

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 187.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet